

Chapter 3 California Environmental Quality Act (CEQA) Evaluation

3.1 Determining Significance under CEQA

The proposed project is a joint project by Caltrans and FHWA and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. FHWA's responsibility for environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S.C. Section 327 and the Memorandum of Understanding dated December 23, 2016, and executed by FHWA and Caltrans. Caltrans is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project), as a whole, has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

3.2 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects will indicate that there are no impacts to a particular resource. A NO IMPACT answer in the last column reflects this determination. The words “significant” and “significance” used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project and standardized measures that are applied to all or most Caltrans projects such as BMPs and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 to provide the reader with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

3.2.1 Aesthetics

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Have a substantial adverse effect on a scenic vista? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

a) No Impact

The proposed project would not have a substantial adverse impact on a scenic vista because the project area does not include any scenic vistas.

b) No Impact

The project is not located on or near a state scenic highway. There are no portions of I-405 (within both Orange County and Los Angeles County) that are officially designated as a state scenic highway nor eligible for state scenic highway designation. Trees, as a component of regular highway landscaping, are addressed in the Construction Impacts section of the Aesthetics question (c), below. No additional visual resources, including rock outcroppings or historic buildings or bridges, can be seen from the project area, and none were identified within the project study area.

c) Less Than Significant Impact

New soundwalls along the corridor would limit views out from the corridor into the surrounding landscape; however, in many locations, the soundwalls would be replacing existing walls with taller structures, so the views may already be affected. Other elements, found in both alternatives, are retaining walls in spot locations along the corridor and a new braided ramp and bridge in the I-405/SR-133 interchange. The visual quality of the existing corridor would be altered by the project; however, this is expected to be less than significant. The existing corridor has a moderately high visual quality derived from the nature of the existing ROW and the landscaping associated with it. Many freeways of equal lanes do not have the room to include the landscaping associated with this stretch of I-405. With either alternative, these aspects of the corridor are expected to remain. Additionally, the City of Irvine entry monument would not be affected by the build alternatives.

Construction Impacts. The project would temporarily have a moderately high impact to the existing visual character and quality of corridor. The project would require removal of 236 and 272 trees, for Alternative 2 and Alternative 3, respectively. This would temporarily reduce softening elements along the highway that can alleviate the expanses of paving and provide scale to the highway structures. This impact would be temporary because replanted skyline trees within available highway ROW would mature to more than 40 feet in height and would help restore the visual character of the corridor over time. There would be spot locations where removal of the vegetation can be expected (such as at some of the locations associated with the ramp reconfiguring). However, these plantings would also be replaced as part of the landscaping plan for the project. Pursuant to City of Irvine Municipal Code Section 5-7-410, a permit is required to remove any significant tree on public or private land. The build alternatives would adhere to all criteria for permits and tree replacement ratios as specified in the ordinance.

Additional construction impacts would include construction/laydown yards likely to be in interchange areas within the project limits. In these areas, construction equipment, concrete

forms, supplies, and sheds would be located. The items in these yards would be visually present to viewers. Other temporary visual impacts would be found with the demolition of existing elements of roadways and streetscapes, construction signage, and flaggers.

d) Less Than Significant Impact

The proposed project would not include new lighting elements in an area where there is currently no lighting. The project may require new/relocated light fixtures or other sources of glare; however, shielded fixtures would prevent light spillover onto adjacent properties. See Section 2.1.7 of this IS/EA.

3.2.2 Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|------------------------------------|--|------------------------------|-------------------------------------|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|---|---|-------------------------------------|-------------------------------------|
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) No Impact

As discussed in Section 2.1.3 of this IS/EA, the build alternatives would not result in any temporary, permanent, or indirect impacts to Important Farmlands. The corner of one unique farmland area is located adjacent to the proposed project near the northwest quadrant of the intersection of I-405/Laguna Canyon Road; however, this land is not included within the project limits and neither a full/partial fee acquisition nor a TCE are needed. Prime farmland is located in the northwest quadrant of the intersection of I-405/Irvine Center Drive, but it is not adjacent to the proposed project. There are no farmlands of statewide importance or Williamson Act lands in the project area.

b) No Impact

There are no parcels under a Williamson Act contract within the project limits.

c) No Impact

There are no designated forest lands or timberlands within or adjacent to the project area.

d) No Impact

There are no forest or timberlands within the project limits.

e) No Impact

There are no other changes anticipated to farmland or forest land. The project would improve and add lanes to an existing freeway segment within an urban setting. Neither growth nor changes in land use would result as part of the project; therefore, conversion of farmland to non-agricultural use nor conversion of forest land to non-forest use would occur. See Section 2.1.3 of this IS/EA.

3.2.3 Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Conflict with or obstruct implementation of the applicable air quality plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Expose sensitive receptors to substantial pollutant concentrations? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Create objectionable odors affecting a substantial number of people? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

a) No Impact

A consistency analysis determination plays an essential role in local agency project review by linking local planning and unique individual projects to the AQMP in the following ways: it fulfills the CEQA goal of fully informing local agency decision makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are fully addressed; and it provides the local agency with ongoing information, assuring local decision makers that they are making real contributions to clean air goals defined in the AQMP. Because the AQMP is based on projections from local General Plans, projects that are consistent with the local General Plan are generally considered consistent with the AQMP. The current adopted plan is the 2016 AQMP.

The overall control strategy for the 2016 AQMP is designed to meet applicable federal and State requirements, including attainment of ambient air quality standards. The 2016 AQMP represents a thorough analysis of existing and potential regulatory control options; includes available, proven, and cost-effective strategies; and seeks to achieve multiple goals in partnership with other entities promoting reductions in GHGs and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The 2016 AQMP includes stationary and mobile source strategies to ensure rapidly approaching attainment deadlines are

met and public health is protected to the maximum extent feasible. The 2016 AQMP acknowledges the most significant air quality challenge in the Basin is to reduce NO_x emissions sufficiently to meet the upcoming O₃ standard deadlines.

The 2016 AQMP provides base year emissions and future baseline emission projections. In doing so, the 2016 AQMP relies on the most recent zoning and land use designations and the best available information, including ARB's latest emission factors for the on-road mobile source emissions inventory, latest in-use fleet inventory for the off-road mobile source emission inventory, latest point source inventory, updated area source inventories, and SCAG's forecast growth assumptions based on its recent RTP/SCS. The baseline emission projections provide a snapshot of the future air quality conditions, including the effects from already adopted rules and regulations.

In addition, Alternative 2 is listed in the 2016-2040 financially constrained RTP/SCS, which was found to conform by SCAG on April 7, 2016, and FHWA and FTA made a regional conformity determination finding on June 2, 2016. Alternative 2 is also included in SCAG's financially constrained 2017 FTIP, listed on page 15 of the Orange County State Highways 100% Prior Years projects. The SCAG 2017 FTIP was determined to conform by FHWA and FTA on December 16, 2016. The design concept and scope of Alternative 2 is consistent with the project description in the 2016-2040 RTP/SCS, 2017 FTIP, and the "open to traffic" assumptions of SCAG's regional emissions analysis.

b) Less Than Significant Impact

For operational emissions, the existing condition has been established as the environmental baseline. Section 2.2.6 of this IS/EA discusses daily mobile source emissions for the existing condition and build alternatives in 2030 and 2050. The analysis demonstrates that VOC, CO, and NO_x emissions for Alternatives 2 and 3 would be less than existing emissions despite traffic growth. This is largely a result of improvements in vehicular engine efficiency technologies and fuel pollutant concentrations that are projected to occur between existing conditions and future conditions resulting from more stringent statewide regulations. These same exhaust reductions would apply to particulate matter emissions; however, as shown in the analysis, particulate matter emissions increase for Alternatives 2 and 3 in 2030 and 2050. This increase would be due to tire dust, brake dust, and re-entrained dust associated with increased traffic volumes predominantly resulting from ambient regional growth not attributed to implementation of the project.

Under Alternative 2, PM₁₀ emissions would increase by 53 pounds per day in 2030 and 88 pounds per day in 2050. PM_{2.5} emissions would increase by 8 pounds per day in 2030 and 17

pounds per day in 2050. Under Alternative 3, PM₁₀ emissions would increase by 63 pounds per day in 2030 and 98 pounds per day in 2050. PM_{2.5} emissions would increase by 11 pounds per day in 2030 and 20 pounds per day in 2050. As an indicator of significance, these emissions would be less than the thresholds established by the local air district of 150 pounds per day for PM₁₀ and 55 pounds per day for PM_{2.5}. The increase in particulate matter emissions is not considered to be significant.

Construction emissions are discussed in Section 2.2.6 of this IS/EA. During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and various other construction-related activities. Exhaust emissions from construction equipment also are expected and would include CO, NO_x, VOCs, directly emitted particulate matter (PM₁₀ and PM_{2.5}), and toxic air contaminants such as DPM. Construction impacts to air quality are short term in duration; therefore, they would not result in long-term adverse conditions. The project includes strategies to reduce fugitive dust and exhaust emissions.

c) Less Than Significant Impact

The air quality analysis is based on traffic volumes developed using the OCTA regional model. Section 2.2.6 of this IS/EA discusses mobile source emissions for the No Build and build alternatives in 2030 and 2050. As discussed above for the traffic methodology, cumulative traffic growth is included in the baseline conditions. Alternative 2 would increase pollutant concentrations between 1 and 3 percent compared to the No Build Alternative in 2030 and 2050. Alternative 3 would increase pollutant concentrations between zero and 5 percent compared to the No Build Alternative in 2030 and 2050. The slight increase to total regional emissions is not considered to be a cumulatively considerable contribution by the project to total emissions.

d) Less Than Significant Impact

In complying with EPA Transportation Conformity requirements, the project underwent Interagency Consultation to determine the likelihood for pollutant hot-spots and localized exposure. As discussed in Section 2.2.6, Air Quality, Interagency Consultation participants concurred that the project is not a POAQC for particulate matter on August 23, 2016. Participants in making the determination included EPA, FHWA, FTA, Caltrans, ARB, and SCAQMD. The air quality analysis also demonstrates that the project would not result in a localized CO hot-spot, which can be used as an indicator of other project-related pollutant concentrations.

e) Less Than Significant Impact

Temporary construction activities could generate fugitive dust from the operation of construction equipment. The project would comply with construction standards adopted by SCAQMD, as well as Caltrans standardized procedures for minimizing air pollutants, during construction.

Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site. Such odors would be quickly dispersed below detectable thresholds as distance from the site increases. Construction emissions would be temporary and limited to the immediate area surrounding the construction site and would not have a significant effect on sensitive receptors. Caltrans standard specifications require documentation of odors and corrective actions taken.

Impacts would be less than significant. No mitigation is required.

3.2.4 Biological Resources

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|---|---|-------------------------------------|-------------------------------------|
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|------------------------------------|--|-------------------------------------|-------------------------------------|
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) Less Than Significant with Mitigation Incorporated

Both build alternatives would permanently impact suitable habitat and foraging habitat for the federally and State-listed endangered species California least tern and least Bell's vireo. Overall, the loss of suitable habitat associated with the project would be minimal relative to the amount of suitable habitat available within the region. Implementation of a build alternative may also result in indirect impacts to three least Bell's vireo territories located within 500 feet of the project footprint due to dust; changes in hydrology; erosion, siltation, and increased runoff; and introduction and spreading of non-native species. In addition, spillover of night lighting along the roadway into the adjacent open spaces could have an adverse impact on the foraging activities of bats. With implementation of the measures below, potential impacts associated with the project to special-status species would be less than significant with mitigation incorporated.

BIO-1: Delineation of ESAs. Prior to clearing or construction, highly visible barriers (e.g., orange construction fencing) will be installed around areas adjacent to the project footprint to designate ESAs to be protected/avoided. Silt fence barriers will be installed at the ESA boundary to prevent accidental deposition of fill material in areas where vegetation is immediately adjacent to planned grading activities. Silt fencing will be installed to exclude western pond turtles.

BIO-2: Onsite Training. When in or near natural habitat areas, all personnel will be required to participate in a preconstruction environmental training program that will describe sensitive habitats, sensitive species, and avoidance and minimization measures associated with the resources in the immediate work area. The training will be conducted by a qualified biologist that has experience in construction monitoring and the biological resources present in the immediate work area. The training will be repeated as needed (e.g., weekly) so that all construction personnel are trained within 1 week of working on the project.

- BIO-3: Avoidance of Breeding Season.** Initial vegetation clearing in riparian habitats must occur between October 1 and January 31, which is during the nonbreeding season for birds/raptors. Work in riparian habitats may occur during the breeding season between February 1 and September 30 if preconstruction bird surveys indicate the absence of any nesting birds within a 50-foot radius and the absence of any nesting special-status species/nesting raptors within a 500-foot radius. A smaller protective buffer may be requested depending on the sensitivity of the species, location of the nest, and existing site conditions (e.g., existing high levels of human activity and/or noise in the vicinity of the nest).
- BIO-4: Biological Monitoring.** The Biological Monitor will be present onsite during all grubbing and clearing of vegetation near ESAs to ensure that these activities remain within the project footprint and that the flagging/stakes/fencing is being maintained. The Biological Monitor will send weekly monitoring reports to Caltrans and the OCTA NCCP Administrator during the grubbing and clearing of vegetation near ESAs.
- BIO-5: Western Spadefoot Preconstruction Surveys.** If construction begins during the western spadefoot breeding season (February through June), a qualified Biological Monitor will survey the impact area for any areas of ponded water (including road ruts) that occur within the impact area for the presence of western spadefoot eggs and/or tadpoles. If no eggs or tadpoles are observed, no further measures will be required. If spadefoot eggs and/or tadpoles are observed in the impact footprint, the area will be avoided until the tadpoles have metamorphosed.
- BIO-6: Western Spadefoot Translocation Plan.** If the area cannot be avoided, a qualified biologist will prepare a Western Spadefoot Translocation Plan that proposes a location where the eggs/tadpoles will be moved and describes methods that will be used to carry out the translocation. The Western Spadefoot Translocation Plan will be reviewed and approved by CDFW and will be implemented as approved.
- BIO-7: Western Pond Turtle Avoidance and Minimization Plan.** Caltrans/OCTA will prepare a Western Pond Turtle Avoidance and Minimization Plan for review and approval by CDFW. The Plan will describe: (1) the methodology for preconstruction surveys based on the planned start of construction (i.e., within or outside of the season when western pond turtles are active); (2) exclusionary measures that will be installed around the construction impact area to exclude turtles; (3) methodology for relocation of western pond turtles outside of the construction impact area; (4)

identification of a relocation site at a nearby location in the same watershed as the project; (5) biological monitoring requirements during construction; and (6) avoidance measures to be implemented during construction to avoid and minimize impacts on the western pond turtle.

- BIO-8: **Western Pond Turtle Preconstruction Surveys.** Two weeks prior to ground-disturbing activities (including placement of heavy equipment) in or near aquatic habitats (i.e., along San Diego Creek – North and San Diego Creek – South), Caltrans/OCTA will ensure that a preconstruction survey is conducted for western pond turtles as described in the Western Pond Turtle Avoidance and Minimization Plan. The preconstruction surveys will be conducted by a CDFW-approved qualified biologist (i.e., one with pond turtle trapping/handling experience and holding a CDFW Scientific Collecting Permit to carry out these activities) to determine their presence or absence within the construction footprint.
- BIO-9: **Western Pond Turtle Exclusion and Relocation.** If western pond turtles are present in the BSA during preconstruction surveys, exclusion and relocation of western pond turtles as described in the Western Pond Turtle Avoidance and Minimization Plan (BIO-8) and approved by CDFW will be implemented. The Plan will provide for the erection of turtle barriers/exclusion fencing and surveys of the construction area to capture and relocate turtles from within the project work area. Turtles will be relocated to nearby suitable habitat a minimum of 300 feet downstream from the work area or another appropriate nearby location within the watershed; relocation areas will be described in the Western Pond Turtle Avoidance and Minimization Plan and will be approved by CDFW prior to relocation of turtles. Immediately prior to initiation of construction, the CDFW-approved biologist will visually survey the work area and will relocate any western pond turtles to the relocation site as approved by CDFW in the Western Pond Turtle Avoidance and Minimization Plan.
- BIO-10: **Biological Monitoring in Western Pond Turtle Occupied Habitat.** Biological Monitoring will occur as described in the Western Pond Turtle Avoidance and Minimization Plan. In areas where western pond turtle occurrence is assumed (i.e., San Diego Creek – North and San Diego Creek – South), a Biological Monitor will be present onsite during vegetation clearing regardless of the outcome of preconstruction surveys and during other construction activities as described in the Plan. If a pond turtle is observed in the impact area (i.e., it was not captured during preconstruction trapping or enters into the construction area following trapping), the

Biological Monitor will have the authority to stop construction activities that could harm the turtle until it can be captured and relocated out of the impact area.

Exclusionary fencing will be used to ensure western pond turtles are kept out of the construction area as described in the Western Pond Turtle Avoidance and Minimization Plan. Exclusionary fencing will be maintained throughout the duration of construction. The integrity of the exclusion fencing will be checked daily by the Biological Monitor throughout construction. Additionally, the Biological Monitor will check the work area every morning before construction may begin to ensure that no turtles are within the exclusion area. Any western pond turtle found will be relocated immediately to the relocation area approved in the Western Pond Turtle Avoidance and Minimization Plan.

Construction will avoid work in ponded or flowing water within 1,500 feet of known turtle locations unless alternative avoidance and minimization measures described in the Western Pond Turtle Avoidance and Minimization Plan are approved by CDFW in the Plan.

BIO-11: Nesting Bird Survey. If Caltrans/OCTA determines that avoidance of the avian breeding season is not feasible, at least 2 weeks prior to the initiation of project activities during the nesting bird/raptor season (i.e., February 1 to September 30 for birds/raptors), a qualified biologist with experience in conducting breeding bird surveys will conduct weekly bird surveys to detect presence/absence of migratory and resident bird species occurring in suitable nesting habitat that would be directly or indirectly disturbed and (as access to adjacent areas allows) any other such habitat within an appropriate buffer distance of the disturbance area. Generally, the buffer distance should be 300 feet (500 feet for federally and State-listed bird species and nesting raptors); however, because the project occurs along a noisy freeway, a buffer distance as low as 100 feet for common species and non-raptors could be appropriate. If a narrow buffer distance is warranted, Caltrans/OCTA will have a qualified biologist identify the appropriate buffer distances for raptors and non-raptors in consultation with the Caltrans Resident Engineer and will notify CDFW. The surveys will continue weekly, with the last survey being conducted no more than 3 days prior to the initiation of project activities. If a nesting bird species is found, Caltrans/OCTA will do the following to avoid and minimize impacts on native birds and the nest or eggs of any birds:

- Flagging, stakes, and/or construction fencing will be used to demarcate the inside boundary of the buffer between the project activities and the nest.

- The Biological Monitor will be present onsite during all grubbing and clearing of vegetation to ensure that these activities remain within the project footprint (i.e., outside the demarcated buffer); to ensure that the flagging/stakes/fencing is being maintained; and to minimize the likelihood that active nests are abandoned or fail due to project activities. The Biological Monitor will send weekly monitoring reports to Caltrans/OCTA and the OCTA NCCP Administrator during the grubbing and clearing of vegetation and will notify Caltrans/OCTA and the OCTA NCCP Administrator immediately if project activities take, possess, or needlessly destroy the nest or eggs of any bird, any bird of prey, or any active bird nests or eggs. Within 48 hours of damage to an active nest or eggs or observed death or injury of birds protected under State law or the MBTA, Caltrans/OCTA will notify USFWS/CDFW.

BIO-12: Avoidance of Crevice-Roosting Bats: Direct modification of culvert and bridge structures and/or construction activities that may cause significant vibration impacts on bat roost structures will be scheduled to avoid the bat maternity season (i.e., March 1 through August 31). If construction activities on these structures cannot be scheduled to avoid the bat maternity season, then temporary bat exclusion devices will be installed to block crevices that could be used for roosting. Exclusion devices will be installed in the fall (i.e., September and October) and will be removed at the conclusion of the construction activities. The bat exclusion devices will be designed to allow bats to exit the roost areas but not re-enter through use of a one-way door type design. All bat exclusion designs will be approved by a qualified bat specialist and CDFW. Installation of the bat exclusion devices will be conducted under supervision of a qualified bat specialist.

BIO-13: Preconstruction Roosting Bat Survey. A preconstruction bat roosting survey will be conducted within 2 weeks prior to direct modification to culvert and bridge structures, even if exclusion measures were installed the previous fall. If the structure is being used as an active day roost during the maternity season, construction will be delayed until September 1, or until a qualified bat specialist determines that breeding activities are complete. If the structure is being used as an active day roost during the non-maternity season, construction activities may commence with approval from CDFW, but construction will occur at night so as not to disturb day-roosting bats.

- BIO-14: **Biological Monitoring by a Bat Specialist.** Direct modification to culverts and bridges will be monitored by a qualified bat specialist unless the bat specialist determines that the culvert/bridge is no longer being actively used for day roosting.
- BIO-15: **Night Lighting during Construction.** Night lighting used during construction and/or additional permanent night lighting will be contained to the ROW. No artificial lighting will illuminate the inside of culverts, the underside of bridges, and/or the streambed/native vegetation along waterways during the evening or night hours (unless direct modification to a culvert or bridge is occurring at night under the supervision of a qualified bat specialist as described above). Lighting plans for permanent light fixtures will be submitted to Caltrans/OCTA for review during the project design phase to ensure that lighting has been minimized to the extent practicable.
- BIO-16: **Avoidance of Foliage-Roosting Bats.** Prior to removal of mature ornamental or riparian trees, a qualified bat specialist will conduct a preconstruction roosting bat survey of the trees to be removed. If no bat roosting is observed, the trees can be removed. If an active day roost is observed during the bat maternity season (i.e., March 1 through August 31), tree removal will be delayed until September 1, or until a qualified bat specialist has determined that bats are no longer breeding. If an active day roost is observed during the non-maternity season (September 1 to February 29), phased tree trimming or exclusionary netting (to allow bats to exit the trees but not re-enter) will be used to allow bats to leave the roost prior to tree removal. All bat exclusion designs will be approved by a qualified bat specialist and CDFW. Installation of bat exclusion devices and tree removal will be conducted under the supervision of a qualified bat specialist.
- BIO-20: **Review of Permanent Night Lighting.** Lighting plans for permanent light fixtures will be submitted for review by Caltrans/OCTA during the project design phase to ensure that lighting has been minimized to the extent practicable. The review will ensure that lighting in or adjacent to conserved habitat (i.e., San Diego Creek, Quail Hill Open Space) is eliminated except where it is essential for roadway use, facility use, safety, or security purposes. It will also ensure that low-pressure sodium illumination sources are used and that low-voltage outdoor or trail lighting, spotlights, and bug lights are not used. Lastly, it will ensure light sources adjacent to conserved habitat is shielded so that the lighting is focused downward.

BIO-21: Noise Levels during Construction. If project construction that generates intensive noise (e.g., pile driving) cannot be completed during the nonbreeding season for birds/raptors (i.e., October 1 to January 31), noise levels at the nest location of federally or State-listed birds and nesting raptors will be kept at or below a 1-hour average ($L_{eq}(1)$) of 60 dBA or will not increase noise levels more than 3 dBA above ambient noise levels, whichever is greater, during the breeding season (i.e., February 1 to September 30). The use of noise-generating equipment (e.g., generators) will be avoided within 500 feet of federally or State-listed birds and nesting raptors.

BIO-23: Use of Best Management Practices during Construction. Caltrans/OCTA will identify structural and nonstructural BMPs to control sediment and non-stormwater discharges from the project site to protect water quality. Actions to prevent sediment from entering watercourses during and after construction may include, but are not limited to, the following BMPs: silt fencing, fiber rolls, gravel bag berms, sand bag barriers, tracking controls, stockpile management, dry season scheduling, proper material delivery and storage, solid waste management, concrete waste management, preservation of existing vegetation, temporary soil stabilization, dust and erosion control, soil binders, and straw mulch. No site personnel will discard solid or liquid materials into jurisdictional water features or any ESA lands. Temporary construction-related BMPs may include, but will not be limited to, the following:

- **Silt Fence.** A silt fence is made of a filter fabric that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support. The silt fence detains sediment-laden water, promoting sedimentation behind the fence.
- **Fiber Rolls.** A fiber roll consists of straw, coir, or other biodegradable materials bound into a tight tubular roll and wrapped by netting, which can be photodegradable or natural. Fiber rolls with plastic netting that poses a wildlife entanglement hazard will not be used. Fiber rolls used for erosion control will be certified as free of noxious weed seed. When fiber rolls are placed at the toe and on the face of slopes along contours, they intercept runoff; reduce its flow velocity; release the runoff as sheet flow; and provide removal of sediment from the runoff. By interrupting the length of a slope, fiber rolls can also reduce sheet and rill erosion until vegetation is established.
- **Gravel Bag Berms.** A series of gravel-filled bags are placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out and release runoff slowly as sheet flow, preventing erosion.

- **Preservation of Existing Vegetation.** Careful planned preservation of existing vegetation minimizes the potential removal or injury to existing trees, vines, shrubs, and grasses that protect soil from erosion.
- **Stockpile Management.** Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, paving materials (e.g., Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, aggregate subbase, or pre-mixed aggregate), asphalt minder (so called “cold mix” asphalt), and pressure-treated wood.
- **Vehicle and Equipment Maintenance.** Contamination of stormwater resulting from vehicle and equipment maintenance can be prevented or reduced by running a “dry and clean site.” The best option will be to perform maintenance activities at an offsite facility. If this option is not available, then work shall be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately. Employees and subcontractors must be trained in proper procedures.

BIO-25: Dewatering. Construction activities in special aquatic resources will be restricted to the dry season (June 1 through October 15) when possible; however, open or flowing water may be present during construction. If construction occurs where there is open or flowing water, a strategy that is approved by the resource agencies (e.g., USACE, CDFW’s Lake and Streambed Alteration Program, and RWQCB), such as the creation of cofferdams, will be used to dewater or divert water from the work area. If cofferdams are constructed, implementation of the following cofferdam or water diversion measures is recommended to avoid and lessen aquatic resources impacts during construction:

- The cofferdams, filter fabric, and corrugated steel pipe are to be removed from the creek bed after completion of the project. The creek bed will be returned to preconstruction topographic contours.
- The timing of work within all channelized waters is to be coordinated with the regulatory agencies.
- The cofferdam is to be placed upstream of the work area to direct base flows through an appropriately sized diversion pipe. The diversion pipe will extend through the contractor’s work area, where possible, and outlet through a sandbag dam at the downstream end.

- Sediment catch basins immediately below the construction site are to be constructed when performing in-channel construction to prevent silt- and sediment-laden water from entering the mainstream flow. Accumulated sediments will be periodically removed from the catch basins.

BIO-26: Restoration of Temporary Impacts. Areas of natural habitat that are temporarily affected by construction activities will be restored to a natural condition. The restoration effort will emulate surrounding vegetation characteristics and/or return to previous conditions. For freeway construction projects, revegetation plans will be part of the project design following Caltrans' landscape architecture guidelines and requirements. Restoration plans will be reviewed and approved by the Wildlife Agencies.

BIO-27: Invasive Species Control. Invasive species will be removed from the project work area and controlled during construction. The use of known invasive plant species (i.e., plant species listed in California Invasive Plant Council's [Cal-IPC] California Invasive Plant Inventory with a High or Moderate rating) will be prohibited for construction, revegetation, and landscaping activities. Project measures will be included to ensure invasive plant material is not spread from the project site to other areas by disposal offsite or by tracking seed on equipment, clothing, and shoes. Equipment/material imported from an area of invasive plants must be identified and measures implemented to prevent importation and spreading of nonnative plant material within the project site. All construction equipment will be cleaned with water to remove dirt, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds before arriving to and leaving the project site. Eradication strategies (i.e., weed abatement programs) will be employed should an invasion occur during construction.

BIO-28: Trash Control. To avoid attracting predators of Covered Species and other sensitive species, the project site will be kept as clean of debris as possible. All food-related trash items will be enclosed in sealed containers and regularly removed from the site(s).

b) Less Than Significant with Mitigation Incorporated

The build alternatives would permanently impact approximately 0.32 acre of riparian habitat, including 0.008 acre of CDFW jurisdictional riparian habitat. The impacts to the riparian area under CDFW jurisdiction are a result of shading due to bridge widenings over these riparian resources. Indirect impacts to riparian habitats outside the project footprint could also be

indirectly impacted from dust; changes in hydrology; erosion, siltation, and increased runoff; and introduction and spreading of non-native species. With implementation of the measures below (BIO-1, BIO-2, BIO-3, and BIO-23), the impacts to riparian habitat would be less than significant with mitigation incorporated.

BIO-1: Delineation of ESAs. Prior to clearing or construction, highly visible barriers (e.g., orange construction fencing) will be installed around areas adjacent to the project footprint to designate ESAs to be protected/avoided. Silt fence barriers will be installed at the ESA boundary to prevent accidental deposition of fill material in areas where vegetation is immediately adjacent to planned grading activities. Silt fencing will be installed to exclude western pond turtles.

BIO-2: Onsite Training. When in or near natural habitat areas, all personnel will be required to participate in a preconstruction environmental training program that will describe sensitive habitats, sensitive species, and avoidance and minimization measures associated with the resources in the immediate work area. The training will be conducted by a qualified biologist that has experience in construction monitoring and the biological resources present in the immediate work area. The training will be repeated as needed (e.g., weekly) so that all construction personnel are trained within 1 week of working on the project.

BIO-3: Avoidance of Breeding Season. Initial vegetation clearing in riparian habitats must occur between October 1 and January 31, which is during the nonbreeding season for birds/raptors. Work in riparian habitats may occur during the breeding season between February 1 and September 30 if preconstruction bird surveys indicate the absence of any nesting birds within a 50-foot radius and the absence of any nesting special-status species/nesting raptors within a 500-foot radius. A smaller protective buffer may be requested depending on the sensitivity of the species, location of the nest, and existing site conditions (e.g., existing high levels of human activity and/or noise in the vicinity of the nest).

BIO-23: Use of Best Management Practices during Construction. Caltrans/OCTA will identify structural and nonstructural BMPs to control sediment and non-stormwater discharges from the project site to protect water quality. Actions to prevent sediment from entering watercourses during and after construction may include, but are not limited to, the following BMPs: silt fencing, fiber rolls, gravel bag berms, sand bag barriers, tracking controls, stockpile management, dry season scheduling, proper material delivery and storage, solid waste management, concrete waste

management, preservation of existing vegetation, temporary soil stabilization, dust and erosion control, soil binders, and straw mulch. No site personnel will discard solid or liquid materials into jurisdictional water features or any ESA lands. Temporary construction-related BMPs may include, but will not be limited to, the following:

- **Silt Fence.** A silt fence is made of a filter fabric that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support. The silt fence detains sediment-laden water, promoting sedimentation behind the fence.
- **Fiber Rolls.** A fiber roll consists of straw, coir, or other biodegradable materials bound into a tight tubular roll and wrapped by netting, which can be photodegradable or natural. Fiber rolls with plastic netting that poses a wildlife entanglement hazard will not be used. Fiber rolls used for erosion control will be certified as free of noxious weed seed. When fiber rolls are placed at the toe and on the face of slopes along contours, they intercept runoff; reduce its flow velocity; release the runoff as sheet flow; and provide removal of sediment from the runoff. By interrupting the length of a slope, fiber rolls can also reduce sheet and rill erosion until vegetation is established.
- **Gravel Bag Berms.** A series of gravel-filled bags are placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out and release runoff slowly as sheet flow, preventing erosion.
- **Preservation of Existing Vegetation.** Careful planned preservation of existing vegetation minimizes the potential removal or injury to existing trees, vines, shrubs, and grasses that protect soil from erosion.
- **Stockpile Management.** Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, paving materials (e.g., Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, aggregate subbase, or pre-mixed aggregate), asphalt minder (so called “cold mix” asphalt), and pressure-treated wood.
- **Vehicle and Equipment Maintenance.** Contamination of stormwater resulting from vehicle and equipment maintenance can be prevented or reduced by running a “dry and clean site.” The best option will be to perform maintenance activities at an offsite facility. If this option is not available, then work shall be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills

immediately. Employees and subcontractors must be trained in proper procedures.

c) Less Than Significant Impact

As discussed in Section 2.3.2 of this IS/EA, the proposed project would not directly impact wetlands or seasonal wetlands. Standard avoidance and minimization measures are proposed to avoid impacts to potential jurisdictional features.

d) No Impact

This project would not affect any migratory wildlife corridors or the movement of any native resident or migratory fish or wildlife species. This project would not impede the use of native wildlife nursery sites.

As described in Section 2.3, Biological Environment, the build alternatives' project effects would not significantly degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal.

e) Less Than Significant Impact

This project would not conflict with any local policies or ordinances protecting biological resources; however, pursuant to City of Irvine Municipal Code Section 5-7-410, a permit is required to remove any significant tree on public or private land. The build alternatives would adhere to all criteria for permits and tree replacement ratios as specified in the ordinance.

f) No Impact

This project would not conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. The project is covered by OCTA's NCCP/HCP (October 2016) and the Central/Coastal NCCP/HCP coverage area (July 1996). Though the project would contribute some loss of suitable habitat, it is considered less than substantial compared to the amount of habitat preserved in the project region. The build alternatives would not conflict with local, State, or regional conservation policies, ordinances, or plans protecting biological resources.

3.2.5 Cultural Resources

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|-------------------------------------|-------------------------------------|
| a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Disturb any human remains, including those interred outside of dedicated cemeteries? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

a) No Impact

Caltrans Professionally Qualified Staff has determined that there are resources in the APE that were exempt from evaluation or were previously determined not to meet CRHR criteria as outlined in CEQA Guidelines 15064.5(a), that the prior determination remains valid, and they are not historical resources for purposes of CEQA.

b) Less Than Significant Impact

No archaeological resources were identified during the survey for the current project. The literature and records search did not reveal any known archaeological sites within 0.25 mile of the project. Given the results of the Extended Phase I study completed within a portion of the study area for another project, the riverine nature of the subsoils, and the disturbed nature of the uppermost layers of sediment in the study area coupled with the minimal planned project excavations, the anticipated likelihood of encountering archaeological resources is low. However, in general, there is a potential to encounter unanticipated buried resources when performing earth-moving activities. With implementation of minimization measure CR-1, impacts would be reduced to less than significant.

c) Less Than Significant with Mitigation Incorporated

Project-related earth-moving activities may directly impact paleontological resources. As proposed, ground disturbance to the following rock units requires mitigation: Old Paralac Deposits overlain by Alluvial Fan Deposits, Very Old Axial Channel Deposits, Very Old Alluvial Fan Deposits, and the Vaqueros Formation. Additionally, monitoring of ground-disturbing activities greater than 6 feet below the surface in Young Axial Channel Deposits

and Young Alluvial Fan Deposits would reduce project-related impacts. With implementation of the measures below (PAL-1, PAL-2, and PAL-3), potential impacts associated with the project to paleontological resources would be less than significant with mitigation incorporated.

PAL-1: A standard special provision for paleontology mitigation will be included in the construction contract special provisions section advising the construction contractor of the requirement to cooperate with paleontological salvage.

PAL-2: A qualified Principal Paleontologist approved by Caltrans will prepare a detailed PMP prior to the start of construction. The Paleontologist will have an M.S. or Ph.D. degree in paleontology or geology and will be familiar with paleontological salvage or mitigation procedures and techniques. The PMP will detail the paleontological monitoring to be implemented during construction and shall include, at a minimum, a description of the following elements:

- Caltrans will perform paleontological monitoring and salvage during construction operations or related activities involving subsurface disturbance on this project. Within the boundaries of the project area, no construction or related activities that might involve subsurface disturbance of paleontologically sensitive geologic formations will be allowed without written authorization of the Engineer and the presence of a Paleontological Monitor. Caltrans will provide a Paleontological Salvage Team consisting of a qualified State-contracted Principal Paleontologist and Paleontological Monitors. The Engineer will make arrangements for the Paleontological Salvage Team to be at the jobsite. Rock units that require monitoring no matter depth of excavation are as follows:
 - Old Paralic Deposits overlain by Alluvial Fan Deposits (Qopf) on both sides of Jamboree Road between Culver Drive and Jefferey Road
 - Very Old Axial Channel Deposits (Qvoa) on Sand Canyon Avenue
 - Very Old Alluvial Fan Deposits (Qvof) located east of Culver Avenue
 - Vaqueros Formation (Tv) from Sand Canyon Avenue to east of Irvine Center Drive
- Although monitoring will be conducted on a full-time basis in all of the areas underlain by those rock units (except those areas underlain by Young Alluvial Fan Deposits and Young Axial Channel Deposits and where earth-moving activities will not reach 6 feet below the current ground surface), monitoring will be reduced

to part time or spot checking in areas underlain by Very Old Alluvial Fan Deposits and Young Axial Channel Deposits if no fossil remains have been discovered after 50 percent of earth-moving activities in the latter areas has been completed.

- Rock units and corresponding parts of project construction in which earth-moving activities will not require monitoring unless there are excavation depths below 6 feet are as follows:
 - Young Axial Channel Deposits (Qya) from Jamboree Road to Culver Drive
 - Young Alluvial Fan Deposits from MacArthur Boulevard to Jamboree Road, east of Culver Drive, and west of Jeffrey Road to Irvine Center Drive
- The Paleontological Salvage Team will be notified 15 days in advance of the start of subsurface disturbing operations.
- The construction contractor will attend a preconstruction meeting with the Paleontological Salvage Team and the Engineer to establish procedures for cooperation and provide for worker safety during monitoring and salvage activities. The Principal Paleontologist and Caltrans Paleontology Coordinator will be present at pre-grading meetings to consult with grading and excavation contractors.
- Just prior to the beginning of earth-moving activities, the Principal Paleontologist will conduct an employee environmental awareness training session for all persons involved in earth-moving activities for the project. All employees, subcontractors, and contractor's representatives involved in subsurface disturbing activities in the project area must receive a 1-hour paleontological resource awareness training program provided by the Paleontological Salvage Team before performing onsite work. A written request for the paleontological awareness training is to be submitted to the Engineer 10 days before the performance of any work.
- Before the start of earth-moving activities, the Paleontological Salvage Team will conduct a preconstruction field survey of the project area, and exposed fossil remains will be recovered, as appropriate, particularly with regard to those remains observed at the two newly recorded fossil localities discovered during the field survey conducted in support of the PIR/PER for this project. A qualified Paleontological Monitor under the direction of the Principal Paleontologist will be onsite to inspect fresh cuts for fossils at all times during original earth-moving activities involving sensitive geologic formations. If necessary, additional

personnel will be assigned to recover unusually large or productive fossil occurrence.

- The Paleontological Salvage Team will monitor and salvage appropriate fossil specimens identified during earth-moving activities. Members of the Paleontological Salvage Team may temporarily divert or stop construction operations in the vicinity of a fossil occurrence or notify of the need to avoid disturbing the fossil locality pending removal of the specimens. When fossils are discovered, the Paleontological Monitor will recover them and contact a Principal Paleontologist for assistance, if needed. Construction work in these areas will be halted or diverted to allow for the recovery of fossil remains in a timely manner.
- As determined necessary by the Principal Paleontologist, bulk sediment samples will be recovered from fossiliferous horizons and fully processed (wet screened, sorted) to allow for the recovery of micro vertebrate remains. If warranted, splits of selected samples will be submitted to the appropriate laboratories for processing and analysis. Processing splits will allow for the recovery and analysis of other types of microfossils, including ostracods, diatoms, and/or pollen.
- Fossil remains collected during the monitoring and salvage phase of the mitigation program will be prepared to a point allowing identification, stabilized, and cataloged. Recovered specimens will be prepared and identified to the lowest taxonomic level possible by appropriate paleontological specialists.
- Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will then be deposited in a Caltrans-approved scientific institution with paleontological collections and made available for future scientific study by qualified investigators.
- A PMR that outlines the results of the mitigation program will be prepared and signed by the Principal Paleontologist. A copy of the report will be supplied to the museum repository and approved by Caltrans.
- At the completion of the project and as appropriate, the Caltrans Paleontology Coordinator will prepare a paleontology stewardship summary with a list of any long-term commitment. The list will be provided to Maintenance and Operations staff, including the Encroachment Permits Office.

PAL-3: If paleontological resources are discovered at the jobsite, the material will not be disturbed. All work within a 60-foot radius of the discovery will stop, the area will be protected, and the Engineer will be notified. Caltrans will investigate and modify the dimensions of the protected area if necessary. Paleontological resources will not be removed from the jobsite without authorization. Work will not resume within the specified radius of the discovery until authorized. If unanticipated fossil remains are discovered in an area of the project area not being actively monitored, the remains will not be disturbed.

d) Less Than Significant Impact

Tribal burial grounds were not identified in the process of coordination and tribal consultation. Tribes or tribal representatives contacted as part of NAHC coordination and/or AB 52 consultation include (1) Juaneno Band of Mission Indians, Acjachemen Nation; (2) Anita Espinoza, Juaneno Band of Mission Indians; (3) Teresa Romero, Chairwoman, Juaneno Band of Mission Indians, Acjachemen Nation; (4) Rebecca Robles, UCPP; (5) Adolph Sepulveda, Vice Chairperson, Juaneno Band of Mission Indians; (6) Joyce Perry, Tribal Manager, Juaneno Band of Mission Indians, Acjachemen Nation; (7) Sonia Johnston, Tribal Chairperson, Juaneno Band of Mission Indians; and (8) Joseph Ontiveros, Cultural Resource Director, Soboba Band of Luiseno Indians.

Although considered unlikely, a potential exists to encounter human remains during ground-disturbing activities. Standard measure CR-2, implemented for all Caltrans projects with earth-moving activities, will be in place in the event of an unanticipated discovery. If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities will cease in any area or nearby area suspected to overlie remains, and the County Coroner will be contacted. Pursuant to PRC Section 5097.98, if the remains are thought to be Native American, the Coroner will notify the NAHC, who will designate the MLD. At this time, the Caltrans District 12 Environmental Branch Chief will be contacted so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

3.2.6 Geology and Soils

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| ii) Strong seismic ground shaking? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| iii) Seismic-related ground failure, including liquefaction? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| iv) Landslides? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in substantial soil erosion or the loss of topsoil? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a-i) Less Than Significant Impact

There are no mapped active faults crossing the site and no Alquist-Priolo Earthquake fault zones. The nearest major active or potentially active surface faults are the San Joaquin Hills Fault, Whittier Fault, and Newport-Inglewood Fault. The nearest mapped Quaternary fault is the Pelican Hill Fault, but this is a minor feature that is overshadowed by the Newport-Inglewood Fault. The Pelican Hill Fault is located approximately 3.4 miles southwest of the project corridor. The Newport-Inglewood Fault is a northwesterly trending series of faults and folds located approximately 4.5 miles west of the western end of the corridor. The Whittier Fault, which extends northwesterly along the eastern flank of the Santa Ana Mountains, is

located approximately 15.4 miles northeast of the site. There are no known active surface faults within the project limits, so the potential for ground rupture is considered low.

a-ii) Less Than Significant Impact

The nearest active or potentially active fault is located approximately 3.4 miles from the project vicinity; as a result, moderate to intense ground shaking should be anticipated at the site in the event of an earthquake. Although the project site is located in seismically active southern California, it is within an existing transportation corridor. No structures would be constructed that would increase the current risk of loss, injury, or death as a result of ground shaking or seismically induced effects. The proposed project would not increase the risk of exposing people or structures to potential adverse effects because of seismic activities or seismic-related ground failure beyond the existing level already present.

a-iii) Less Than Significant Impact

Some near-surface alluvial sediments within the project area are susceptible to liquefaction due to moderate to intense ground shaking and historical groundwater levels ranging from 10 to 40 feet bgs. Liquefaction analyses indicate a low liquefaction potential at (1) San Diego Creek east of the SR-133/I-405 interchange, (2) University Drive, and (3) from east of Culver Drive to the western project limit. High potential for liquefaction is west of Jamboree Road and outside of the project limits.

a-iv) No Impact

The project is in an area that generally has a low to negligible potential for landslides.

b) No Impact

During project construction of the build alternatives, excavated soil would be exposed and subject to increased potential for soil erosion. Conformance with the General Construction Permit and implementation of erosion and sediment control BMPs would minimize impacts into receiving waters. These are standard measures included in all Caltrans projects involving earth movement.

c) No Impact

The project area generally has a low to negligible potential for on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

d) No Impact

The project area generally has a low to negligible potential for expansive soil.

e) No Impact

Within the project vicinity and project area, sewers are available for the disposal of waste water.

3.2.7 Greenhouse Gas Emissions

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--|--|------------------------------|-----------|
| <p>a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</p> <p>b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?</p> | <p>Caltrans has used the best available information based to the extent possible on scientific and factual information, to describe, calculate, or estimate the amount of greenhouse gas emissions that may occur related to this project. The analysis included in the climate change section of this document provides the public and decisionmakers as much information about the project as possible. It is Caltrans' determination that in the absence of statewide-adopted thresholds or GHG emissions limits, it is too speculative to make a significance determination regarding an individual project's direct and indirect impacts with respect to global climate change. Caltrans remains committed to implementing measures to reduce the potential effects of the project. These measures are outlined in the climate change section that follows the CEQA checklist and related discussions.</p> <p>Caltrans, as lead agency, conducted a quantitative analysis of operational greenhouse gas emissions using project-specific traffic data and EMFAC2014 (version 6.0). A summary of results is provided in Section 3.3, Climate Change.</p> | | | |

3.2.8 Hazards and Hazardous Materials

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|------------------------------------|--|------------------------------|-------------------------------------|
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|------------------------------------|--|-------------------------------------|-------------------------------------|
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) No Impact

The project itself would not cause the routine transport, use, or disposal of hazardous materials; however, hazardous materials are currently transported through the project area along I-405. This would continue with implementation of the build alternatives. Transportation of hazardous materials would not increase as a result of the project.

b) No Impact

There would be potential for accidental releases from trucks traveling on I-405; however, those releases would not be caused by the project. The potential for releases exists in the current conditions on I-405.

During construction, the contractor would be required to use standard construction controls and safety procedures, which would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, state, and federal law. Avoidance and minimization measures would be implemented (i.e.,

requiring disposal of construction waste at appropriate, permitted disposal facilities and consultation with appropriate agencies if unknown hazards are encountered). Refer to Section 2.2.5 for further detail.

c) No Impact

Schools are present within 0.25 mile of the project area. Project operations are not expected to result in the creation of new health hazards or expose people to potential new health hazards because the project consists of improvements to an existing highway only, and the storage of toxic materials or chemicals is not a proposed component of the project.

d) No Impact

Based on a review of available regulatory database records, the footprint for both build alternatives does not include sites that have been listed as a hazardous materials site pursuant to Government Code Section. 65962.5. A Hazardous Waste ISA was prepared, which determined reviewed potential hazardous waste RECs that may be encountered as part of project construction. The project would not encounter groundwater near the SB lanes of I-405 at Jamboree Road. Sampling, including ADL testing and ACMs would occur to ensure no significant hazard would be created.

e) Less Than Significant Impact

The project is located adjacent to John Wayne Airport; however, the project would not result in a safety hazard to people residing or working in the project area because the project consists of improvements to an existing highway only. The project does not involve substantial changes to the vertical profile of the existing facility.

f) No Impact

The project is not within the vicinity of a private airstrip.

g) No Impact

The project may impact emergency response times during construction due to short-term road closures. A TMP would be developed to minimize or eliminate impacts to emergency response times. The TMP would be coordinated with emergency service providers (i.e., fire and police) to ensure that traffic control measures would meet the needs of the service providers. Any detours should be provided to all emergency service entities that service the area prior to their implementation to avoid impacts to emergency response times. During construction, emergency access on public roadways would be available at all times to maintain emergency

vehicle access, emergency response, and/or emergency evacuation. The project would permanently provide additional travel lanes on an existing facility, which emergency service providers could utilize.

h) No Impact

According to the City of Irvine Safety Element, Fire Hazard Areas map (June 2012), the project site is located adjacent to a high fire hazard area between Sand Canyon Avenue and SR-133, south of I-405. This area is designated as a conditional exclusion developed area. The project consists of improvements to an existing highway only.

3.2.9 Hydrology and Water Quality

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|-------------------------------------|-------------------------------------|
| a) Violate any water quality standards or waste discharge requirements? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| f) Otherwise substantially degrade water quality? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|---|---|-------------------------------------|-------------------------------------|
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) Inundation by seiche, tsunami, or mudflow | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) Less Than Significant Impact

Construction of the project would require roadway widening, improvements to two bridges that cross the San Diego Creek Channel, and improvements to drainage culverts. Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During construction activities, excavated soil would be exposed, and there would be an increase in potential for soil erosion compared to existing conditions. In addition, chemicals, liquid products, and petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via storm runoff into receiving waters. Dewatering may also be required at the San Diego Creek Channel bridges to create a temporary dry construction area for bridge construction. To minimize water quality impacts, temporary BMPs would be implemented and all necessary permits would be obtained, which may include an encroachment permit from OCFCD, Section 404 and 408 Permits from USACE, Section 401 Permit from Santa Ana RWQCB, 1602 Streambed Alteration Agreement from CDFW, and NPDES permits.

The project would result in a permanent increase in impervious surface area by 12 acres, an increase of approximately 4 percent of the total area of the existing impervious surface area of the I 405 project corridor. An increase in impervious area would increase the volume of runoff during a storm and could also cause a decrease in infiltration; however, the project would use permanent treatment BMPs, including infiltration devices, detention devices, biofiltration swales/strips, and/or media filters, to address pollutants of concern during operation of the roadway facility. The treatment BMPs are measures designed to remove pollutants from stormwater runoff prior to discharging to receiving waters. Based on preliminary hydraulic calculations, the net new impervious surface area that would be treated by the proposed treatment BMPs is estimated to be greater than 100 percent. Additional measures involving

permits and BMPs are discussed in Section 2.2.1, Hydrology and Floodplains, and Section 2.2.2, Water Quality and Stormwater Runoff. With temporary BMPs and permanent treatment BMPs in place, the project would not violate any water quality standards or waste discharge requirements.

b) No Impact

Soils throughout most of the project corridor have very low infiltration rates. Because infiltration is very low in existing conditions, operation of the roadway would not substantially decrease infiltration. In addition, operation of the project would not require long-term groundwater extraction.

c) Less Than Significant Impact

Construction of the project would require improvements to two bridges that cross the San Diego Creek Channel and improvements to drainage culverts. However, the project would not substantially alter the existing drainage pattern of the area that would result in substantial erosion or siltation on- or off-site.

d) Less Than Significant Impact

See response to IX. Hydrology and Water Quality, Item A and Item C.

e) Less Than Significant Impact

See response to IX. Hydrology and Water Quality, Item A.

f) No Impact

See response to IX. Hydrology and Water Quality, Item A.

g) No Impact

The project does not propose any housing development within 100-year flood hazard areas.

h) No Impact

The project crosses or is directly adjacent to six FEMA 100-year floodplains. However, the project would not generate considerable quantities of runoff that could create a flood hazard and would not redirect or impede flood flows.

i) No Impact

The project is not within the vicinity of a levee or dam.

j) No Impact

The project is outside of the designated tsunami inundation zones. Additionally, the project would not result in inundation by seiche or mudflow.

3.2.10 Land Use and Planning

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|-------------------------------------|-------------------------------------|
| a) Physically divide an established community? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) No Impact

I-405 is an existing transportation facility. The project would improve the existing facility and would not divide any existing neighborhoods or communities or separate residents from community facilities.

b) Less Than Significant Impact

Table 2.1.1-4 of this IS/EA identifies the state, regional, and local programs, plans, and policies that would apply to the project and project consistency with these programs, plans, or policies. Most of the project would be constructed within the freeway ROW. Implementation of Alternative 2 is generally consistent with applicable state, regional, and local programs, plans, and policies. The build alternatives involve the temporary closure of existing bike trails during project construction.

c) No Impact

Table 2.1.1-4 of this IS/EA identifies the state, regional, and local programs, plans, and policies that would apply to the project and project consistency with these programs, plans, or policies. Most of the project would be constructed within the freeway ROW. Implementation of the build alternatives is generally consistent with applicable state, regional, and local programs, plans, and policies. The build alternatives are considered to be compatible.

3.2.11 Mineral Resources

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|-------------------------------------|-------------------------------------|
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) No Impact

The District Preliminary Geotechnical Report (December 2015) did not identify mineral resources within the project footprint.

b) No Impact

Local plans reference the California Division of Mines and Geology, which show that the project is within an area “where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.”

3.2.12 Noise

| Would the project result in: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|-------------------------------------|--------------------------|
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

| Would the project result in: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|------------------------------------|--|------------------------------|-------------------------------------|
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) Less Than Significant Impact

The sensitivity of the noise receptors and the number of residences affected are described in further detail in Section 2.2.7 of this IS/EA, as applicable. The setting of a potential noise impact and magnitude of a potential impact is discussed below.

Segment 1

The setting of Segment 1 (I-5 to SR-133) includes multi-family residences and office buildings along NB I-405 and commercial land uses along NB and SB I-405. These land uses are not unique and are common along highway ROWs. There is an existing property wall protecting land uses from highway traffic noise.

Existing traffic noise levels in Segment 1 range from 51.8 to 74.8 dBA. Future predicted traffic noise levels range from 52.9 to 75.9 dBA and 52.9 to 76.0 dBA for Alternative 2 and Alternative 3, respectively. Because the absolute increase of noise does not exceed 3 dBA, the magnitude of the noise increase is minimal and barely perceptible to the human ear. The change in the absolute noise level is not considered to be large nor perceptible in this area. Under CEQA, a less than significant impact would occur as a result of the project, and no mitigation is required.

Segment 2

The setting of Segment 2 (SR-133 to Sand Canyon Avenue) includes office buildings and Kaiser Permanente along NB I-405 and multi-family residences, undeveloped land, and a retail complex along SB I-405. These land uses are not unique and are common along highway ROWs.

Existing traffic noise levels in Segment 2 range from 55.0 to 76.0 dBA. Future predicted exterior traffic noise levels in Segment 2 range from 56.3 to 77.2 dBA and 56.5 to 77.9 dBA for Alternative 2 and Alternative 3, respectively. Because the absolute increase of noise does not exceed 3 dBA, the magnitude of the noise increase is minimal and barely perceptible to the human ear. The change in the absolute noise level is not considered to be large nor perceptible in this area. Under CEQA, a less than significant impact would occur as a result of the project, and no mitigation is required.

Segment 3

The setting of Segment 3 (Sand Canyon Avenue to Jeffrey Road/University Drive) includes single-family residences, multi-family residences along NB I-405, and open space along SB I-405. These land uses are not unique and are common along highway ROWs. There is an existing property wall protecting land uses from highway traffic noise.

Existing traffic noise levels in Segment 3 range from 52.1 to 74.0 dBA. Future predicted traffic noise levels in Segment 3 range from 53.2 to 75.3 dBA and 54.0 to 76.0 dBA for Alternative 2 and Alternative 3, respectively. Because the absolute increase of noise does not exceed 3 dBA, the magnitude of the noise increase is minimal and barely perceptible to the human ear. The change in the absolute noise level is not considered to be large nor perceptible in this area. Under CEQA, a less than significant impact would occur as a result of the project, and no mitigation is required.

Segment 4

The setting of Segment 4 (Jeffrey Road/University Drive to Culver Drive) includes multi-family residences along NB and SB I-405 and single-family residences and Rancho San Joaquin Middle School along SB I-405. These land uses are not unique and are common along highway ROWs. There are existing property walls and soundwalls along Caltrans ROW protecting land uses from highway traffic noise.

Existing traffic noise levels in Segment 4 range from 58.6 to 73.7 dBA. Future predicted traffic noise levels range from 59.6 to 74.7 dBA and 60.2 to 75.2 dBA for Alternative 2 and Alternative 3, respectively. Because the absolute increase of noise does not exceed 3 dBA, the magnitude of the noise increase is minimal and barely perceptible to the human ear. The change in the absolute noise level is not considered to be large nor perceptible in this area. Under CEQA, a less than significant impact would occur as a result of the project, and no mitigation is required.

Segment 5

The setting of Segment 5 (Culver Drive to Jamboree Road) includes single- and multi-family residences, Hotel Irvine, and office buildings along NB I-405 and multi-family residences, Boomers! Amusement Park, and an office building along SB I-405. These land uses are not unique and are common along highway ROWs. There is an existing property wall and soundwalls along Caltrans ROW protecting land uses from highway traffic noise.

Existing traffic noise levels in Segment 5 range from 53.4 to 79.7 dBA. Future predicted traffic noise levels in Segment 5 range from 53.4 to 79.7 dBA and 53.4 to 79.9 dBA for Alternative 2 and Alternative 3, respectively. Because the absolute increase of noise does not exceed 3 dBA, the magnitude of the noise increase is minimal and barely perceptible to the human ear. The change in the absolute noise level is not considered to be large nor perceptible in this area. Under CEQA, a less than significant impact would occur as a result of the project, and no mitigation is required.

Segment 6

The setting of Segment 6 (Jamboree Road to MacArthur Boulevard) includes Hilton Garden Inn, Wyndham Irvine-Orange County Airport Hotel, and office buildings along NB I-405 and a multi-family residential development (planned) and office buildings along SB I-405. These land uses are not unique and are common along highway ROWs. As part of the planned residential development, there is a planned property wall that would protect land uses from highway traffic noise.

Existing traffic noise levels in Segment 6 range from 65.7 to 77.9 dBA. Future predicted traffic noise levels in Segment 6 range from 66.1 to 78.0 dBA and 66.0 to 78.1 dBA for Alternative 2 and Alternative 3, respectively. Because the absolute increase of noise does not exceed 3 dBA, the magnitude of the noise increase is minimal and barely perceptible to the human ear. The change in the absolute noise level is not considered to be large nor perceptible in this area. Under CEQA, a less than significant impact would occur as a result of the project, and no mitigation is required.

Segment 7

The setting of Segment 7 (MacArthur Boulevard to SR-55) includes office buildings and airport parking along NB I-405 and John Wayne Airport along SB I-405. These land uses are not unique and are common along highway ROWs.

Existing traffic noise levels in Segment 7 range from 66.2 to 70.9 dBA. Future predicted traffic noise levels in Segment 7 range from 66.6 to 71.1 dBA and 66.5 to 71.0 dBA for Alternative 2 and Alternative 3, respectively. The magnitude of the noise increase is minimal and barely perceptible to the human ear. The change in the absolute noise level is not considered to be large nor perceptible in this area. Under CEQA, a less than significant impact would occur as a result of the project, and no mitigation is required.

NOTE: Under NEPA/23 CFR 772, because the noise levels at certain receptors already approach or exceed the NAC, noise abatement would need to be considered for most segments.

b) Less Than Significant Impact

Certain construction activities could cause intermittent localized concern from vibration in the project area. However, a combination of mitigation techniques for equipment vibration control, as well as administrative measures, when properly implemented, could be selected to provide the most effective means to minimize the effects of construction activity. These minimization measures are provided in Section 2.2.7 of this IS/EA.

c) Less Than Significant Impact

A substantial noise increase is considered to occur when the project's predicted worst-hour design-year noise level exceeds the existing worst-hour noise level by 12 dBA or more. Future build noise levels would increase by zero to 2.1 dB from existing conditions, well below what is considered to be a substantial noise increase.

d) Less Than Significant Impact

Noise from construction activities may intermittently dominate the environment in the immediate area of construction. Construction activities should be minimized in residential areas during evening, nighttime, weekend, and holiday periods. Standard noise-reduction procedures would be implemented to minimize noise disturbances at sensitive areas during construction.

e) No Impact

The project is located adjacent to John Wayne Airport; however, it would not result in changes to existing air circulation patterns nor expose new receptors to noise due to air travel. Additionally, no substantial noise increases would occur from project implementation. Future build noise levels would increase by zero to 2.1 dB from existing conditions. An increase in noise levels, by less than 3 dB, is generally perceived as barely detectable by the average

person. The project would not expose people residing or working in the project area to excessive noise levels.

f) No Impact

The project is not located within the vicinity of a private airstrip.

3.2.13 Population and Housing

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|-------------------------------------|-------------------------------------|
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) No Impact

The project is not anticipated to induce further urban growth. Land use would not be affected because the build alternatives are not growth inducing and would not result in reasonable foreseeable growth. See Section 2.1.2 of this IS/EA.

b) No Impact

The project does not require full acquisition of properties with existing residential structures. Relocation is not required.

c) No Impact

The project does not require relocation of people. Construction of replacement housing is not required.

3.2.14 Public Services

| | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | | | | |
| Fire protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Police protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Schools? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Parks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Other public facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

a1) Fire protection? Less Than Significant Impact

No permanent adverse impacts on emergency fire services would result from implementation of the build alternatives. The build alternatives would improve traffic throughput and travel times, and reduce delays for travelers. These improvements would have beneficial effects for law enforcement, fire protection, and emergency service providers. As a result of the short-term road closures, temporary delays in emergency response times may occur during construction of the project due to temporary lane closures and/or traffic detours. These effects would be minimized with the implementation of a TMP, which would reduce the disruption of emergency fire services. See Section 2.1.6 of this IS/EA.

a2) Police protection? Less Than Significant Impact

No permanent adverse impacts on emergency police services would result from implementation of the build alternatives. The build alternatives would improve traffic throughput and travel times, and reduce delays for travelers. These improvements would have beneficial effects for law enforcement, fire protection, and emergency service providers. As a result of the short-term road closures, temporary delays in emergency response times may occur during construction of the project due to temporary lane closures and/or traffic detours. These effects would be minimized with implementation of a TMP, which would reduce the disruption of emergency fire services. See Section 2.1.6 of this IS/EA.

a3) Schools? No Impact

There are no schools within the project footprint, and there are no schools in the project vicinity that require access from the project area.

a4) Parks? No Impact

There are no parks within the project footprint.

a5) Other public facilities? Less Than Significant Impact

The project would require relocation of two overhead power poles that extend across I-405 adjacent and parallel to the east side of the Laguna Canyon Road overcrossing. These utilities would be relocated in the same general area within an existing SCE easement, pursuant to the utility provider's requirements. Project construction would require conduit connections to existing power sources, which may include private utility companies; however, no disruption to electrical connections is anticipated. The following underground utilities would require extensions of their concrete encasement: (1) one 66kV underground SCE power line crossing I-405 north of Irvine Center Drive, (2) two AT&T underground telephone lines crossing I-405 north of Laguna Canyon Road, (3) one Pacific Telephone and Telegraph underground telephone line crossing I-405 north of Jamboree Road, and (4) two to four Irvine Ranch Water District sewer lines crossing I-405 south of Harvard Avenue.

An updated utility search would be required during the Final Design phase of the project to determine all utility conflicts that require positive location and/or relocation.

Short-term impacts would occur to two recreational trails: (1) Freeway Trail and (2) San Diego Creek Trail. No permanent changes to the trails would occur, impacts would be temporary, and the land would be fully restored to pre-project conditions after construction. If closure is required, night-time closure would avoid disruption of its recreational use.

3.2.15 Recreation

| | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|---|---|-------------------------------------|--------------------------|
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

| | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|------------------------------------|--|------------------------------|-------------------------------------|
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) Less Than Significant Impact

The project is not anticipated to induce further urban growth and would not increase the demand for regional parks or other recreational facilities. The project would not increase access to existing parks or other recreational facilities. During project construction, full closure of the San Diego Creek Trail and Freeway Trail for a total duration of less than 90 days would be necessary for the widening of the San Diego Creek Bridge (Reach 1 and 2) and soundwall construction adjacent to the NB Culver Drive off-ramp, respectively. This closure is necessary to protect the safety of trail users and construction workers. A temporary detour is proposed and would be part of the TMP developed during the PS&E phase of the project. Coordination of any trail closure plan would be coordinated with the City of Irvine and the County of Orange. At the completion of construction, the trail segment would be restored to its original alignment and to a condition as good as or better than prior to the project; therefore, less than significant impact is anticipated.

b) No Impact

The project does not include recreational facilities or require the construction or expansion of recreational facilities. The project is not anticipated to induce further urban growth and would not increase the demand for additional recreational facilities. The project is considered to have no adverse physical effects on the environment due to the need for new or expanded recreational facilities.

3.2.16 Transportation/Traffic

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

a) Less Than Significant Impact

The project is consistent with regional transportation plans to address traffic congestion along the I-405 corridor and nearby local jurisdictions. The project is identified in the approved FTIP (2017) as project ORA131304. The 2017 FTIP was adopted by SCAG on September 1, 2016. The project is anticipated to improve traffic operations and alleviate future traffic congestion for all modes of transportation along I-405. During construction of the project, lane and/or road closures may occur along I-405 and nearby local streets. A TMP would be prepared prior to construction to ensure traffic circulation is maintained within the area.

b) Less Than Significant Impact

Intersections – Among intersections within Caltrans jurisdiction, all study intersections are expected to operate at or above the LOS requirement for both build alternatives.

For intersections under City of Irvine jurisdiction, the intersection of Jeffrey Road and Alton Parkway is expected to operate at LOS E during the AM and PM peak hour in 2030 and 2050. The intersection of Culver Drive and University Drive is expected to operate at LOS E during the PM peak hour in both 2030 and 2050. The remaining study intersections are expected to operate at or above the LOS requirement. Though these intersections operate at unacceptable LOS levels, the project decreases the d/c ratio compared to the same conditions under Alternative 1 (No Build) conditions. As such, this is not considered a significant impact associated with both build alternatives.

Arterials – Comparing d/c ratios under Alternative 1, both build alternatives would not contribute to significant impacts.

Freeway Mainline – Under Alternative 1 (No Build) conditions, 9 out of the 14 mainline segments where improvements are proposed operate at LOS F. Under Alternative 2, the addition of one GP lane decreases the number of segments operating at LOS F to 8 segments. Under Alternative 3, the addition of two GP lane decreases the number of segments operating at LOS F to three segments. Both build alternatives would improve traffic operations along I-405.

c) No Impact

The project would widen I-405 within the vicinity of John Wayne Airport. The build alternatives would have no impact to existing air traffic patterns.

d) No Impact

The project would not substantially increase hazards due to design features or incompatible uses. Overall, the project would reduce hazards by including many design improvements over the existing condition. Additionally, the project is designed to Caltrans state-wide standards, and any exceptions are carefully reviewed through formal Caltrans review processes. The project is considered to have no impact in increasing hazards. The project to improve an existing transportation facility is compatible with existing transportation use of the facility.

e) Less Than Significant Impact

The project would not result in inadequate emergency access. The project would generally improve emergency access by widening I-405 and provide additional auxiliary lanes along I-405. However, during construction of the project, emergency access may be affected due to road and/or lane closures.

Prior to the start of construction, a TMP would be developed to minimize or eliminate impacts to emergency response times. TMP developers would coordinate with emergency service providers (i.e., fire and police) during plan development to ensure that traffic control measures proposed in the plan would meet the needs of the service providers. Any needed detours should be provided to all emergency service entities that service the area prior to their implementation to avoid impacts to emergency response times. During construction, emergency access on public roadways would be available at all times to maintain emergency vehicle access, emergency response, and/or emergency evacuation. The project would permanently provide additional travel lanes on an existing facility, which emergency service providers could utilize.

f) Less Than Significant Impact

The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Existing bike lanes and trails within the project limits would be maintained. Existing sidewalks within the project limits would also be maintained. Pedestrian facilities on arterials being improved would meet current ADA standards for sidewalks, access ramps, and crosswalks. During construction, pedestrian and bicycle facilities may be closed for a short duration; however, a detour plan would be implemented when these facilities are closed during construction to ensure connectivity with the greater circulation system.

3.2.17 Tribal Cultural Resources

| | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|-------------------------------------|
| Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: | | | | |
| a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|------------------------------------|--|------------------------------|-------------------------------------|
| b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) No Impact

No cultural resources were identified during the survey for the current project. The literature and records search did not reveal any known sites within 0.25 mile of the project. Given the results of the Extended Phase I study completed for a separate project (University Drive South Bound On-Ramp Widening Project [EA 0P250]) within a portion of the APE and the riverine nature of the subsurface soils, and the disturbed nature of the uppermost layers of sediment in the APE coupled with the minimal planned project excavations, the anticipated likelihood of encountering archaeological resources is low.

As part of the requirements for AB 52 (California Native American Tribe consultation), tribes that requested notification on District 12 projects were sent letters by Caltrans on October 26, 2015, offering consultation on the project. The tribes included (1) Joyce Perry, Tribal Manager, Juaneño Band of Mission Indians, Acjachemen Nation; (2) Andrew Salas, Chairman, Gabrieleño Band of Mission Indians – Kizh Nation; and (3) Joseph Ontiveros, Cultural Resources Director, Soboba Band of Luiseño Indians. No AB 52 responses were received for this project by Caltrans.

b) No Impact

No AB 52 responses were received for this project by Caltrans. Substantial evidence under Section 5024.1 has not been presented nor discovered as part of the project.

3.2.18 Utilities and Service Systems

| Would the project: | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|------------------------------------|--|-------------------------------------|-------------------------------------|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

a) No Impact

The RWQCB's wastewater treatment requirements would not be exceeded as a result of the project because the project does not include land uses that require these services.

b) No Impact

The project would not require new water or wastewater treatment facilities, or expansion of existing facilities because the project does not increase land uses that require wastewater treatment.

c) Less Than Significant Impact

The project would increase stormwater runoff caused by an increase in impervious surface area, which would increase the volume of flow and potentially increase the velocity of some

onsite systems within the project limits; however, implementation of design measures and standard erosion control practices would minimize the effects of downstream flow. In addition, infiltration and detention devices proposed for the project would provide flow duration control functions, as needed. Operation of the project is subject to the requirements of the Caltrans NPDES Permit.

d) No Impact

The project would not increase the need for domestic water services because the project would not result in an increase in land uses that require these services. Post-project needs would remain consistent with pre-project need.

e) No Impact

The project would not increase the need for wastewater treatment or facilities because the project would not result in an increase in land uses that require these services. Post-project needs would remain consistent with pre-project need.

f) No Impact

Construction activities would not generate solid waste amounts that would exceed the capacity of a landfill. In addition, upon construction completion, the project would not increase the need for solid waste disposal because the project would not result in an increase in land uses that require these services.

g) No Impact

The project would comply with federal, state, and local statutes and regulations regarding solid waste. Any construction debris identified to contain hazardous materials would be disposed of properly at the appropriate, permitted disposal facility. See Section 2.2.5.

3.2.19 Mandatory Findings of Significance

| | Significant and Unavoidable Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|------------------------------------|--|-------------------------------------|--------------------------|
| a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

a) Less Than Significant with Mitigation Incorporated

As discussed above in Section 3.2.4, Biological Resources, the project may have impacts to habitat for animal species. With implementation of the measures listed in Section 3.2.4, potential impacts would be less than significant with mitigation incorporated.

b) Less Than Significant Impact

“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

The potential for cumulative impacts is discussed in Section 2.4 of this IS/EA. Though the project would have impacts to some resources, none of these would result in cumulatively considerable effects.

c) Less Than Significant Impact

Permanent impacts are considered less than significant on human beings. The project would result in temporary construction effects to human beings related to air quality and noise. These impacts would be less than significant due to the use of standard project construction period measures. See Air Quality and Noise above, and Sections 2.2.6 and 2.2.7 of this IS/EA.

3.3 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to GHG emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation.¹ In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) make up the largest contributors of GHG emissions.² The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: “greenhouse gas mitigation” and “adaptation.” “Greenhouse gas mitigation” is a term for reducing GHG emissions to reduce or “mitigate” the impacts of climate change. “Adaptation” refers to the effort of planning for and responding to impacts resulting from climate change (e.g., adjusting transportation design standards to withstand more intense storms and higher sea levels).

¹ <https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014>.

² <https://www.arb.ca.gov/cc/inventory/data/data.htm>.

3.3.1 Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce GHG emissions from transportation sources.

3.3.1.1 Federal

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

NEPA (42 U.S.C. Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

FHWA recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices.³ This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—“the triple bottom line of sustainability.”⁴ Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

The Energy Policy Act of 1992 (EPACT92) (102nd Congress H.R.776.ENR): With this act, Congress set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation’s dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel

³ <https://www.fhwa.dot.gov/environment/sustainability/resilience/>.

⁴ <https://www.sustainablehighways.dot.gov/overview.aspx>.

vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005 (109th Congress H.R.6 2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Policy and Conservation Act of 1975 (42 U.S.C. Section 6201) and Corporate Average Fuel Standards: This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance, 74 *Federal Register* 52117 (October 8, 2009): This federal EO set sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance. It instituted as policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities.

EO 13693, Planning for Federal Sustainability in the Next Decade, 80 *Federal Register* 15869 (March 2015): This EO reaffirms the policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities. It sets sustainability goals for all agencies to promote energy conservation, efficiency, and management by reducing energy consumption and GHG emissions. It builds on the adaptation and resiliency goals in previous executive orders to ensure agency operations and facilities prepare for impacts of climate change. This order revokes EO 13514.

EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing CAA and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, EPA finalized an endangerment finding in December 2009. Based on scientific evidence, it found that six GHGs constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions.

EPA, in conjunction with the National Highway Traffic Safety Administration (NHTSA), issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010⁵ and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon (mpg) by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 mpg by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and ARB will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted standards for model years 2022 through 2025. However, EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 mpg by 2025 was appropriate. In March 2017, President Donald Trump ordered EPA to reopen the review and reconsider the mileage target.⁶

NHTSA and EPA issued a Final Rule for “Phase 2” for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO₂ emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

Presidential EO 13783, Promoting Energy Independence and Economic Growth, of March 28, 2017, orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of carbon, nitrous oxide, and methane.

3.3.1.2 State

With the passage of legislation including State Senate and Assembly Bills and Executive Orders, California has been innovative and proactive in addressing GHG emissions and climate change.

AB 1493, Pavley Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the ARB to develop and implement regulations to reduce automobile and light truck GHG emissions.

⁵ <http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq>.

⁶ <http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256> and <https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse>.

These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

EO S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of AB 32 in 2006 and SB 32 in 2016.

AB 32, Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

EO S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

EO S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

SB 97, Chapter 185, 2007, Greenhouse Gas Emissions: This bill requires the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

SB 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop an SCS that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

SB 391, Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

EO B-16-12 (March 2012) orders State entities under the direction of the Governor, including ARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

EO B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all State agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO₂e). Finally, it requires the Natural Resources Agency to update the State's climate adaptation strategy, Safeguarding California, every 3 years and to ensure that its provisions are fully implemented.

SB 32, Chapter 249, 2016, codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

3.3.2 Environmental Setting

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020. The Scoping Plan was first approved by ARB in 2008 and must be updated every 5 years. ARB approved the First Update to the Climate Change Scoping Plan on May 22, 2014. ARB is moving forward with a discussion draft of an updated Scoping Plan that will reflect the 2030 target established in EO B-30-15 and SB 32.

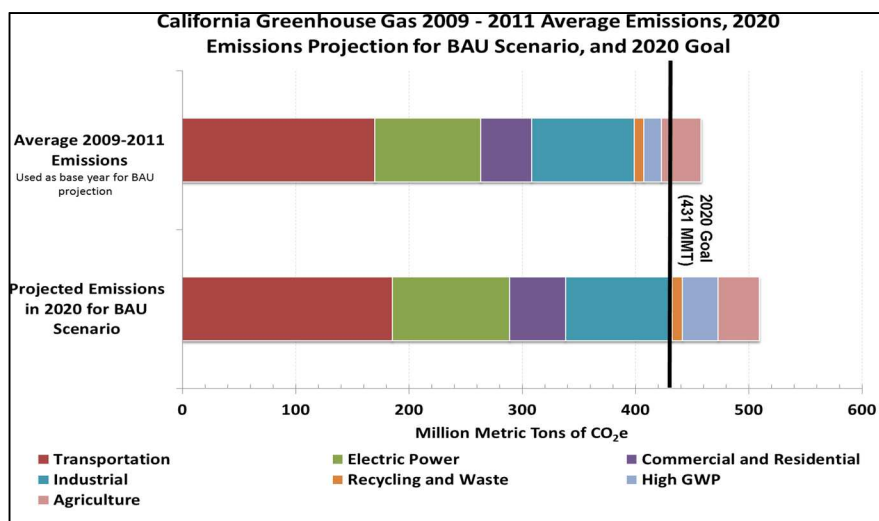
The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California.⁷ ARB is responsible for

⁷ 2017 Edition of the GHG Emission Inventory Released (June 2017):
<https://www.arb.ca.gov/cc/inventory/data/data.htm>.

maintaining and updating California's GHG Inventory per H&SC Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in Figure 3.3-1 represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431 MMTCO₂e⁸. The 2017 edition of the GHG emissions inventory (released June 2017) found total California emissions of 440.4 MMTCO₂e, showing progress towards meeting the AB 32 goals.

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand, as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery. The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 MMTCO₂e total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 MMTCO₂e.



<https://www.arb.ca.gov/cc/inventory/data/bau.htm>

Figure 3.3-1. 2020 Business as Usual (BAU) Emissions Projection 2014 Edition

⁸ The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4).

3.3.3 Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.⁹ In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

GHG emissions for transportation projects can be divided into those produced during operations and those produced during construction. The following represents a best faith effort to describe the potential GHG emissions related to the proposed project.

3.3.4 Operational Emissions

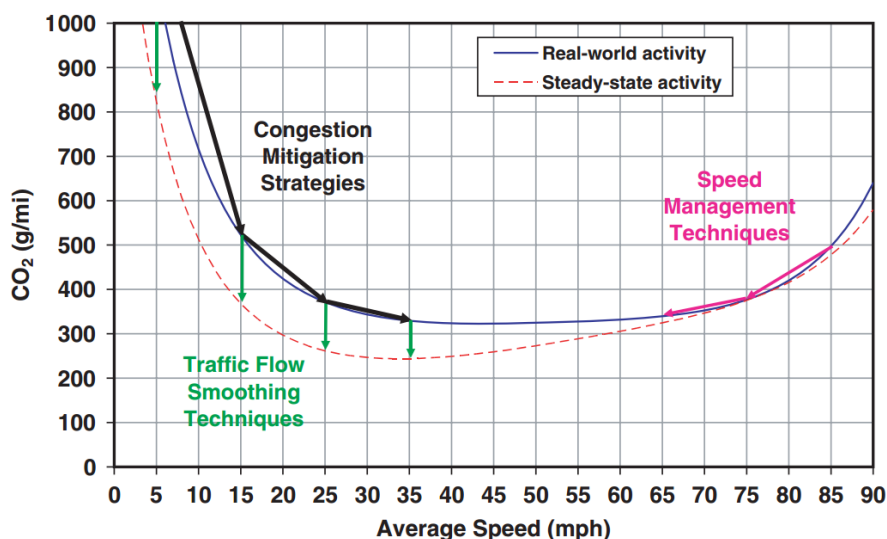


Figure 3.3-2. Possible Use of Traffic Operation Strategies In Reducing On-Road CO₂ Emissions¹⁰

⁹ This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the U.S. Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

¹⁰ Matthew Barth and Kanok Boriboonsomsin, University of California, Riverside, May 2010 (<http://uctc.berkeley.edu/research/papers/846.pdf>).

Four primary strategies can reduce GHG emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity, (3) transitioning to lower GHG-emitting fuels, and (4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued concurrently.

FHWA supports these strategies to lessen climate change impacts, which correlate with efforts that the State of California is undertaking to reduce GHG emissions from the transportation sector.

The highest levels of CO₂ from mobile sources, such as automobiles, occur at stop-and-go speeds (zero to 25 mph) and speeds greater than 55 mph; the most severe emissions occur from zero to 25 mph (see Figure 3.3-2 above). To the extent that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, GHG emissions, particularly CO₂, may be reduced.

SCAG's 2016-2040 RTP/SCS charts a course for closely integrating land use and transportation in certain areas of the region so that we as a whole can grow smartly and sustainably. The 2016-2040 RTP/SCS includes more than 4,000 projects—ranging from highway improvements, railroad grade separations, and bicycle lanes to new transit hubs and replacement bridges. The regional transit planning behind the creation of the 2016-2040 RTP/SCS accounts for a continued statewide emphasis on reducing GHG emissions and consistency with SB 375. The 2016-2040 RTP/SCS regional air quality modeling demonstrates that the implementation of projects included in the RTP/SCS would create a transportation network that would be consistent with SB 375 GHG reduction goals. Alternative 2 is listed in the 2016-2040 RTP/SCS and is consistent with regional GHG reduction goals.

OCTA bus routes 211, 212, and 216 include a portion of I-405. There are no plans at this time to add or modify transit facilities within the project limits as a component of the project; however, improvements to the mainline capacity would provide transit benefits by potentially reducing the travel time of any transit route that is programmed or has future plans to use this portion of the I-405 mainline. There are no rail connections or rail lanes within or adjacent to the segment of I-405 in the project corridor.

OCTA completed an MIS for south Orange County in 2008. The MIS developed an integrated, multimodal transportation plan that addresses the mobility needs of motorists, pedestrians, and transit users. The OCTA Board adopted a resolution supporting the Locally Preferred Strategy (LPS) identified in the MIS, which included the addition of GP lanes and interchange improvements on I-405. Additionally, AB 2542, which requires any state or local automobile

capacity increasing project or highway realignment project approved by the CTC to have considered reversible lanes; however, AB 2542 does not apply to the project.

In addition, SCAG has made the Congestion Management Process an integral part of the regional transportation process. A detailed plan that assesses single-occupancy vehicle capacity-enhancing projects is included in an appendix to the 2016-2040 RTP/SCS. The I-405 corridor within the project limits is currently experiencing congestion and traffic delays during the peak hours due to local, regional, and interregional traffic demand exceeding capacity. In addition, forecasted local and regional traffic demand is expected to increase, resulting in the need to improve the I-405 corridor. Consistent with the Congestion Management Process, the proposed project alternatives are designed to improve traffic operations on I-405 in Orange County to reduce congestion, increase throughput, and enhance trip reliability for the planning design year of 2050. Vehicle hours of delay on I-405 within the study area on a typical weekday have been calculated as:

- 6,300 vehicle hours (existing)
- 14,300 vehicles hours in year 2050 under Alternative 1 (No-Build)
- 9,400 vehicles hours in year 2050 under Alternative 2
- 9,200 vehicles hours in year 2050 under Alternative 3

3.3.5 Quantitative Analysis

CO₂ emissions are presented in Table 3.3.5-1. Emissions were estimated using project-specific traffic data and EMFAC2014 (version 6.0). The following discussion summarizes the methodology and results. Refer to the *Air Quality Study Report* (April 2017) for additional methodology and detailed traffic data used in the emissions analysis.

Relative to Alternative 1 (No Build), Alternative 2 would increase regional GHG emissions 2.6 percent in 2030 and 1.9 percent in 2050. Alternative 3 would increase GHG emissions 4.5 percent in 2030 and 2.7 percent in 2050 relative to the No Build Alternative. Between the two build alternatives, Alternative 2 would generate GHG emissions of lesser magnitude than Alternative 3. In the Opening and Horizon Years, regional GHG emissions would be less than existing conditions under all alternatives because EMFAC accounts for emissions benefits of rulemakings, including on-road diesel fleet rules, Advanced Clean Car Standards, and the Smartway/Phase I Heavy Duty Vehicle Greenhouse Gas Regulation. The California vehicle fleet is also assumed to become less polluting over time as older engines are phased out and replaced by newer, less polluting engines. The improvement in emission rates offsets the VMT increase.

Table 3.3.5-1. Modeled Annual CO₂ Emissions and Vehicle Miles Traveled, by Alternative

| Scenario | Metric Tons per Year (MTCO ₂ /year) | Annual Vehicle Miles Traveled ¹ |
|--|--|--|
| Existing Year 2015 Conditions | | |
| | 297,395 | 792,903,735 |
| Opening Year 2030 Emissions and Comparisons | | |
| Alternative 1 (No Build) | 205,112 | 859,770,282 |
| Alternative 2 | 210,447 | 890,008,182 |
| Net Change from No Build | 5,335 | 30,237,900 |
| Percent Change from No Build (%) | 2.6% | 3.5% |
| Alternative 3 | 214,304 | 905,622,166 |
| Net Change from No Build | 9,193 | 45,851,884 |
| Percent Change from No Build (%) | 4.5% | 5.3% |
| Horizon/Design Year 2050 Emissions and Comparisons | | |
| Alternative 1 (No Build) | 200,383 | 911,367,602 |
| Alternative 2 | 204,198 | 943,551,014 |
| Net Change from No Build | 3,814 | 32,183,412 |
| Percent Change from No Build (%) | 1.9% | 3.5% |
| Alternative 3 | 205,776 | 960,221,199 |
| Net Change from No Build | 5,393 | 48,853,597 |
| Percent Change from No Build (%) | 2.7% | 5.4% |
| ¹ Annual vehicle miles traveled (VMT) values derived from Daily VMT values multiplied by 347, per ARB methodology (ARB 2008). | | |

Source: EMFAC 2014; Terry A. Hayes Associates Inc., Air Quality Study Report, April 2017.

While EMFAC has a rigorous scientific foundation and has been vetted through multiple stakeholder reviews, its emission rates are based on tailpipe emission test data. The numbers are estimates of CO₂ emissions and not necessarily the actual CO₂ emissions. The model does not account for factors such as the rate of acceleration and the vehicles' aerodynamics, which would influence CO₂ emissions. To account for CO₂ emissions, ARB's GHG Inventory follows the IPCC guideline by assuming complete fuel combustion, while still using EMFAC data to calculate CH₄ and N₂O emissions. Though EMFAC is currently the best available tool for use in calculating GHG emissions, it is important to note that the CO₂ numbers provided are only useful for a comparison of alternatives.

3.3.6 Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate CO₂ emissions from mobile sources, the model does have limitations when it comes to accurately reflecting changes in CO₂ emissions due to impacts on traffic. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008) and a 2009 University of California study,¹¹ brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle's CO₂ emissions during a typical urban trip. Current emission-factor models do not distinguish the emission of such modal events (i.e., acceleration, deceleration) in the operation of a vehicle and instead estimate emissions by average trip speed. It is difficult to model this because the frequency and rate of acceleration or deceleration that drivers choose to operate their vehicles depend on each individual's human behavior, their reaction to other vehicles' movements around them, and their acceptable safety margins. Currently, EPA and CARB have not approved a modal emissions model that is capable of conducting such detailed modeling. This limitation is a factor to consider when comparing the model's estimated emissions for various project alternatives against a baseline value to determine impacts.

Other Variables

With the current understanding, project-level analysis of GHG emissions has limitations. Although a GHG analysis is included for this project, there are numerous external variables that could change during the design life of the proposed project and would thus change the projected CO₂ emissions.

First, vehicle fuel economy is increasing. EPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2016,"¹² which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy improves each year with a noticeable rate of change beginning in 2005. CAFE standards remained the same between model years 1995 and 2003, subsequently increasing to higher fuel economy standards for future vehicle model years. EPA estimates that light-duty fuel economy rose by 29 percent from model year 2004 to 2015, attributed to new technology that improved fuel

¹¹ Matthew Barth, Kanok Boriboonsomsin. 2009. *Energy and Emissions Impacts of a Freeway-Based Dynamic Eco-Driving System*. Transportation Research Part D: Transport and Environment Volume 14, Issue 6, August 2009, Pages 400–410.

¹² <https://www.epa.gov/fueleconomy/light-duty-automotive-technology-carbon-dioxide-emissions-and-fuel-economy-trends-1975-1>.

economy while keeping vehicle weight relatively constant. Table 3.3.6-1 shows the increases in required fuel economy standards for cars and trucks between Model Years 2012 and 2025, from NHTSA for the 2012–2016 and 2017–2025 CAFE Standards.

Table 3.3.6-1. Average Required Fuel Economy (mpg)

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2020 | 2025 |
|-----------------------|------|------|------|------|------|-----------|-----------|-----------|-----------|
| Passenger Cars | 33.3 | 34.2 | 34.9 | 36.2 | 37.8 | 39.6-40.1 | 41.1-41.6 | 44.2-44.8 | 55.3-56.2 |
| Light Trucks | 25.4 | 26 | 26.6 | 27.5 | 28.8 | 29.1-29.4 | 29.6-30.0 | 30.6-31.2 | 39.3-40.3 |
| Combined | 29.7 | 30.5 | 31.3 | 32.6 | 34.1 | 35.1-35.4 | 36.1-36.5 | 38.3-38.9 | 48.7-49.7 |

Sources: EPA 2013, <http://www.epa.gov/fueleconomy/fetrends/1975-2012/420r13001.pdf>;

EPA 2012, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-model-year-2017-and-later-light-duty-vehicle#rule-summary>.

Second, new lower-emission and zero-emission vehicles will come into the market within the expected design life of this project. According to the 2013 Annual Energy Outlook (AEO2013):

LDVs that use diesel, other alternative fuels, hybrid-electric, or all-electric systems play a significant role in meeting more stringent GHG emissions and CAFE standards over the projection period. Sales of such vehicles increase from 20 percent of all new LDV sales in 2011 to 49 percent in 2040 in the AEO2013 Reference case.¹³

The greater percentage of lower-emissions and zero-emissions vehicles on the road in the future will reduce overall GHG emissions compared to scenarios in which vehicle technologies and fuel efficiencies do not change.

Third, California adopted a low-carbon transportation fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became effective January 12, 2010 (codified in Title 17, California Code of Regulations, Sections 95480-95490). Beginning January 1, 2011, transportation fuel producers and importers must meet specified average carbon intensity requirements for fuel in each calendar year.

¹³ [http://www.eia.gov/forecasts/aeo/pdf/0383\(2013\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf).

3.3.7 Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, and traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved TMPs, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

Construction GHG emissions for Alternatives 2 and 3 are presented in Table 3.3.7-1 in terms of carbon dioxide equivalent (CO₂e), including carbon dioxide (CO₂), methane (CH₄), and Nitrous Oxide (N₂O). Construction emissions were estimated using the Sacramento Metropolitan Air Quality Management District Road Construction Emissions Model, which is based on the EMFAC2014 and OFFROAD models. Between the two build alternatives, Alternative 2 construction CO₂e emissions would be of lesser magnitude than those of Alternative 3.

Table 3.3.7-1. Construction-Related GHG Emissions

| Alternative | Carbon Dioxide Equivalent ¹ Emissions | | Construction Duration |
|---|--|------------------------|-----------------------|
| | Metric Tons per Year (MT/year) ² | Total Metric Tons (MT) | |
| Alternative 2 | 3,416 | 10,249 | 36 months |
| Alternative 3 | 3,445 | 10,336 | 36 months |
| ¹ . CO ₂ e = CO ₂ , CH ₄ , and N ₂ O ² . Annual emissions were obtained by dividing total emissions by 3 years, the construction duration of each build alternative. | | | |

Source: Terry A. Hayes Associates Inc., Air Quality Study Report, April 2017.

As discussed in Section 2.2.6, Air Quality, the construction contract would include Caltrans Standard Specification 14-9.02, which requires contractors to comply with all applicable laws and regulations related to air quality. Measures AQ-13 and AQ-15 through AQ-18 would further minimize construction-related GHG emissions by restricting idling times and specifying energy-conservation practices. Measure T-1 (see Section 2.1.6.4) specifies that a final TMP will be prepared prior to construction that identifies methods to avoid and minimize construction-related traffic and circulation effects.

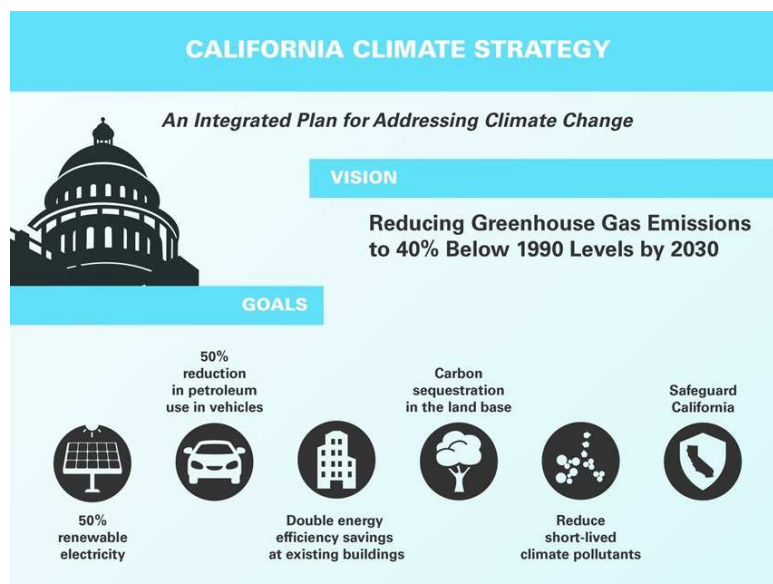
3.3.8 CEQA Conclusion

As discussed above, all alternatives show a reduction in GHGs in 2030 and 2050 compared to existing conditions, due to improvements in fuel efficiency and engine technologies. However, Alternatives 2 and 3, the build alternatives, show an increase in GHG emissions in 2030 and 2050 compared to Alternative 1, the No Build Alternative. Nonetheless, there are also limitations with EMFAC and with assessing what a given CO₂ emissions increase resulting from an individual project means for global climate change. Therefore, it is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a determination regarding significance of the project's direct impact and its contribution on the cumulative scale to climate change; however, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

3.3.9 Greenhouse Gas Reduction Strategies

Statewide Efforts

To further the vision of California's GHG reduction targets outlined in AB 32 and SB 32, Governor Jerry Brown identified key climate change strategy pillars (concepts) (Figure 3.3-3). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars are (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the State's climate adaptation strategy, Safeguarding California.



**Figure 3.3-3. The Governor’s Climate Change Pillars:
2030 Greenhouse Gas Reduction Goals**

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of VMT. One of Governor Brown’s key pillars sets the ambitious goal of reducing today’s petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove CO₂ from the atmosphere through biological processes and to then sequester carbon in above- and below-ground matter.

Caltrans Activities

Caltrans continues to be involved on the Governor’s Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan (CTP 2040)

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future statewide, integrated, multimodal transportation system. It serves as an umbrella document for all of the other statewide transportation planning documents.

SB 391 (Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs. While MPOs have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans Strategic Management Plan

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT per capita
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in *Caltrans Activities to Address Climate Change* (2013).

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a department policy that will ensure coordinated efforts to incorporate climate change into departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

1. Project-Level GHG Reduction Strategies
2. Landscaping reduces surface warming and, through photosynthesis, decreases CO₂. The project would include planting in the intersection slopes, drainage channels, and seeding in areas next to frontage roads, as well as planting a variety of different-sized plant material and scattered skyline trees where appropriate. These trees will help offset any potential CO₂ emissions increase.
3. The project would incorporate the use of energy-efficient lighting, such as light-emitting diode (LED) traffic signals. LED bulbs cost \$60 to \$70 each but last 5 to 6 years, compared to the 1-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the project's CO₂ emissions.
4. The construction contractor must comply with SCAQMD rules, ordinances, and regulations in regards to air quality restrictions.
5. A final TMP will be prepared prior to construction that identifies methods to avoid and minimize construction-related traffic and circulation effects and minimize impacts to pedestrian and bicycle access during project construction.
6. Use lighting systems that are energy efficient, such as LED technology
7. Use cement blended with the maximum feasible amount of fly ash or other materials that reduce GHG emissions from cement production
8. Incorporate design measures to reduce GHG emissions from solid waste management through encouraging solid waste reduction, recycling, and reuse
9. Incorporate passive solar and other design measures to reduce energy consumption and increase production and use of renewable energy
10. Incorporate design measures such as Water Sense fixtures and water capture to reduce water consumption
11. Use lighter-colored pavement where feasible
12. Recycle construction debris to maximum extent feasible
13. Protect and plant shade trees in or near construction projects where feasible
14. Solicit bids that include concepts listed above

15. Minimize unnecessary vehicular and machinery activities.
16. Revegetate disturbed land.
17. Ensure that all construction equipment is properly tuned and maintained.
18. Minimize idling time to 5 minutes—saves fuel and reduces emissions.
19. Project sponsors should ensure to the extent possible that construction activities utilize grid-based electricity and/or onsite renewable electricity generation rather than diesel and/or gasoline powered generators.
20. Develop a traffic plan to minimize traffic flow interference from construction activities.
21. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.
22. As appropriate, require that portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, obtain ARB Portable Equipment Registration with the state or a local district permit. Arrange appropriate consultations with the ARB or the District to determine registration and permitting requirements prior to equipment operation at the site.
23. Diesel- or gasoline-powered equipment shall be replaced by lowest emitting feasible for each piece of equipment from among these options: electric equipment whenever feasible, gasoline-powered equipment if electric infeasible.
24. On-site electricity shall be used in all construction areas that are demonstrated to be served by electricity.
25. Convert part of the construction truck fleet to natural gas.
26. Include “clean construction equipment fleet,” defined as a fleet mix cleaner than the state average, in all construction contracts.
27. Fuel all off-road and portable diesel-powered equipment with ARB-certified motor vehicle diesel fuel (non-taxed version suitable for use off-road).
28. Use electric fleet or alternative fueled vehicles where feasible, including methanol, propane, and compressed natural gas.
29. Use diesel construction equipment meeting ARB’s Tier 4 certified engines or cleaner off-road heavy-duty diesel engines and comply with State off-road regulation.
30. Use on-road, heavy-duty trucks that meet ARB’s 2007 or cleaner certification standard for on-road diesel engines, and comply with the State on-road regulation.

31. Use idle reduction technology, defined as a device that is installed on the vehicle that automatically reduces main engine idling and/or is designed to provide services (e.g., heat, air conditioning, and/or electricity) to the vehicle or equipment that would otherwise require the operation of the main drive engine while the vehicle or equipment is temporarily parked or is stationary.
32. Minimize idling time either by shutting off equipment when not in use or limit idling time to 3 minutes. Signs shall be posted in the designated queuing areas and/or job sites to remind drivers and operators of the 3-minute idling limit. The construction contractor shall maintain a written idling policy and distribute it to all employees and subcontractors. The on-site construction manager shall enforce this limit.
33. The engine size of construction equipment shall be the minimum practical size.
34. Signs shall be posted in designated queuing areas and job sites to remind drivers and operators of the idling limit.
35. Construction worker trips shall be minimized by providing options for carpooling and by providing for lunch onsite.
36. Use new or rebuilt equipment.
37. Maintain all construction equipment in proper working order, according to manufacturer's specifications. The equipment must be checked by an ASE-certified mechanic and determined to be running in proper condition before it is operated.
38. Coordinate controlled intersections so that traffic passes more efficiently through congested areas. Where traffic signals or streetlights are installed, require the use of LED technology or similar technology.
39. Determine traffic management strategies to reduce, to the maximum extent feasible, traffic congestion and the effects of parking demand by construction workers during construction of this project and other nearby projects that could be simultaneously under construction. Develop a construction management plan that includes the following items and requirements, if determined feasible and applicable by the Lead Agency:
 - A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours, detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes.
 - Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur.
 - Location of construction staging areas for materials, equipment, and vehicles at an approved location.

- A process for responding to, and tracking, complaints pertaining to construction activity, including identification of an onsite complaint manager. The manager shall determine the cause of the complaints and shall take prompt action to correct the problem. The Lead Agency shall be informed who the Manager is prior to issuance of the first permit.
- Provision for accommodation of pedestrian flow.
- As necessary, provision for parking management and spaces for all construction workers to ensure that construction workers do not park in on street spaces.
- Any damage to the street caused by heavy equipment, or as a result of this construction, shall be repaired, at the project sponsor's expense., within 1 week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to issuance of a final inspection of the building permit. All damage that is a threat to public health or safety shall be repaired immediately. The street shall be restored to its condition prior to the new construction as established by the Lead Agency (or other appropriate government agency) and/or photo documentation, at the sponsor's expense, before issuance of a Certificate of Occupancy.

3.3.10 Adaptation Strategies

“Adaptation strategies” refer to how Caltrans and others can plan for the effects of climate change on the State’s transportation infrastructure and strengthen or protect the facilities from damage—or, put another way, planning and design for resilience. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. These types of impacts to the transportation infrastructure may also have economic and strategic ramifications.

Federal Efforts

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the CEQ, the Office of Science and Technology Policy (OSTP), and National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28,

2011,¹⁴ outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provided an update on actions in key areas of federal adaptation, including building resilience in local communities, safeguarding critical natural resources such as freshwater; and providing accessible climate information and tools to help decision-makers manage climate risks.

USDOT issued *U.S. DOT Policy Statement on Climate Adaptation* in June 2011, committing to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective in current and future climate conditions."¹⁵

To further the USDOT Policy Statement, in December 15, 2014, FHWA issued Order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*).¹⁶ This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation's transportation systems.

FHWA has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, State, and local levels.¹⁷

State Efforts

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of State agencies to address California's vulnerability to sea-level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea-level rise and directed all State agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. Sea-level rise estimates should also be used in

¹⁴ <https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience>.

¹⁵ https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm.

¹⁶ <https://www.fhwa.dot.gov/legisregs/directives/orders/5520.cfm>.

¹⁷ <https://www.fhwa.dot.gov/environment/sustainability/resilience/>.

conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, and storm surge and storm wave data.

Governor Schwarzenegger also requested the National Academy of Sciences to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington* (Sea-Level Rise Assessment Report)¹⁸ was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates; and the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (e.g., roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and a discussion of future research needs regarding sea-level rise.

In response to EO S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, State, federal, and public and private entities, developed *The California Climate Adaptation Strategy* (December 2009),¹⁹ which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across state agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan).

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 in April 2015, requiring State agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how State agencies are implementing EO B-30-15 were added to the Safeguarding California Plan. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

EO S-13-08 also gave rise to the *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided "guidance for incorporating sea-level rise (SLR) projections into planning and decision making for projects in California," specifically, "information and

¹⁸ *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at: http://www.nap.edu/catalog.php?record_id=13389.

¹⁹ <http://www.climatechange.ca.gov/adaptation/strategy/index.html>.

recommendations to enhance consistency across agencies in their development of approaches to SLR.” The March 2013 update²⁰ finalizes the SLR Guidance by incorporating findings of the National Academy’s 2012 final Sea-Level Rise Assessment Report; the policy recommendations remain the same as those in the 2010 interim SLR Guidance. The guidance will be updated as necessary in the future to reflect the latest scientific understanding of how the climate is changing and how this change may affect the rates of SLR.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is actively engaged in working towards identifying these risks throughout the state and will work to incorporate this information into all planning and investment decisions as directed in EO B-30-15.

The proposed project is outside the coastal zone and not in an area subject to sea-level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.

²⁰ <http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/>.

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